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ABSTRACT

Experiences of pilot-test state agencies in developing an information system are summarized, as part of the State Level Information Base project. The background and functions of each of the eight pilot-test state agencies are described, along with the information systems approach, and planning responsibilities (comprehensive planning, budgeting, and program review). Attention is also directed to each agency's data set, the developmental schedule and resources involved, the nature of the postsecondary education community being addressed, and the costs of each state's information system. In addition, results are reported of special efforts to identify the information required for state-level adult- and continuing education planning (developed in cooperation with Idaho and Nebraska) and state-level educational outcomes analysis (developed in cooperation with Hawaii and Rhode Island). The institutions are as follows: California Postsecondary Education Commission, University of Hawaii, Illinois Board of Higher Education, Kentucky Council of Higher Education, New Jersey Department of Higher Education, New York State Education Department, South Carolina Commission on Higher Education, and the State Council of Higher Education for Virginia. (SW)

PSE
Information Planning
at the State Level

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Pilot-Test State Case Studies

HE.017 549

Postsecondary-Education Information Planning at the State Level

Five documents have been published as a result of the State-Level Information Base project under the general title of *Postsecondary-Education Information Planning at the State Level.* The specific documents are as follows.

Overview. The *Overview* briefly describes the project's purpose, history, and results.

Planning Guide. The *Guide* provides a context for understanding the major environmental and procedural factors influencing the development of state-level information systems. Specifically, it discusses assessment of the developmental environment (agency authority and role, institutional concerns), selection of a procedural approach to information-system planning, assessment of information needs generally, selection and evaluation of specific data elements, and assessment of resource requirements (staffing, computer and systems support, institutional costs).

Selection of Data to Address Planning Issues. As a companion to the *Planning Guide,* this document provides a framework for reviewing common state-level planning issues, the questions that focus analysis on those issues, and the general data requirements associated with the more common questions and analyses. The document includes a section summarizing references to applicable data sources (in either published or machine-readable format), including, when possible, descriptions or examples of these sources. The Glossary section of the document contains standard data definitions and suggested categories for collecting and presenting data.

Pilot-Test State Case Studies. The *Case Studies* describe the background and functions of each of the eight pilot-test state agencies, its approach to information systems, and its planning responsibilities (comprehensive planning, budgeting, program review). Each agency's data set is also described, and each state's information-system costs are summarized. This document also discusses attempts to develop state-level information about adult/continuing education in two pilot-test states and about educational outcomes in two others.

Systems-Related Experiences in Eight Pilot-Test States. As a companion to the *Case Studies,* this document describes pilot-test state experience with systems development, including evaluation of information needs, hardware and software choices, survey administration, staffing considerations, data organization, and data storage and linkage considerations. The ranges of developmental costs among pilot-test state agencies are summarized, and caveats related to difficulties in obtaining reliable and informative data on costs are discussed.

This report has been produced as part of a project supported by the W.K. Kellogg Foundation of Battle Creek, Michigan, with supplemental funding from the National Center for Education Statistics.

Postsecondary-Education Information Planning at the State Level

Pilot-Test State Case Studies

Roger Bassett

1979

National Center for Higher Education Management Systems
P.O. Drawer P Boulder, Colorado 80302
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COMMENTS FROM THE PILOT-TEST STATES

For Those Who Follow

The documents provided by the State-Level Information Base project represent the individual experiences of the eight states that have attempted to establish a common methodology for collecting, displaying, and using information with the project's issues and data framework as a guide.

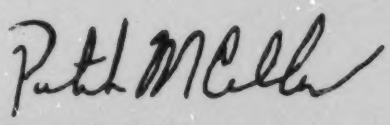
In the course of implementing or upgrading our individual state-level information systems over the last three years, we have learned that inter- and intrastate data comparability, while a worthwhile objective, is occasionally an administrative quagmire. Goals that appeared to be theoretically possible and administratively reasonable often proved to be elusive when placed in a practical setting.

During the course of our efforts we have reported our findings to the project Task Force, the Participant States Group, and NCHEMS staff. Modifications have been made in the earlier documents to incorporate our changing thoughts. These documents accurately reflect our experiences, emphasizing the value we have found in implementing the project's concepts while providing cautions regarding the occasional pitfalls we have encountered.

It is important for the reader to understand that each of our states has derived different but important benefits from the concepts represented in the documents. Organizational, political, and economic constraints precluded "successes" in some areas in spite of the dedicated work of our institutional colleagues and our support staff. That we have achieved our results in different ways should be viewed as one of the more important outcomes of the project and as evidence of our collective feeling that no magic solutions exist in the area

of information-based state-level planning. The existence of the project documents and other services will not end all data ills but can, however, substantially aid states contemplating implementation of a statewide information system to support state-level planning responsibilities.

We convey the project documents to you with the hope that you will profit from our experiences, and we trust that you will join us in sharing the insights you gain in implementing the project's concepts with those who follow.



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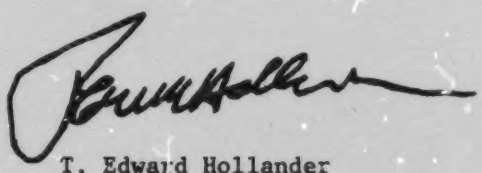

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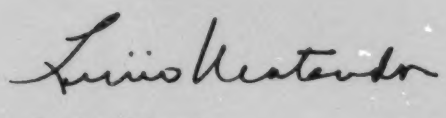

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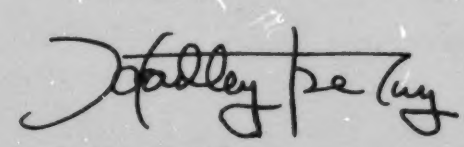

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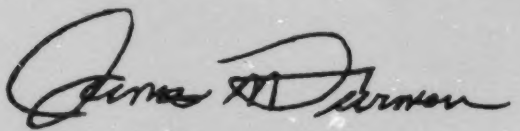

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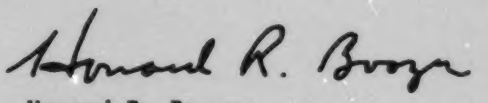

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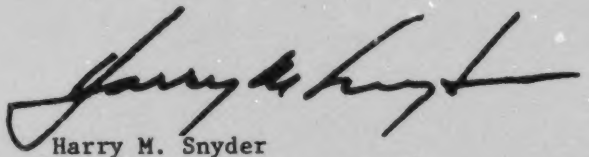

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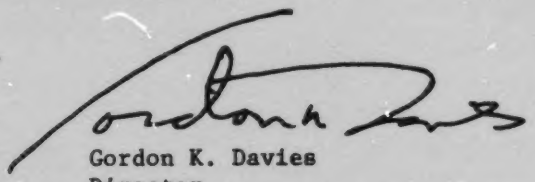

Gordon K. Davies
Director
The State Council of Higher Education
for Virginia

PREFACE

The State-Level Information Base project was initiated in July 1975 with funding from the W. K. Kellogg Foundation to assist state-level planners in postsecondary education with their information needs. The project since then has developed a set of services to guide information-system planners in the development and maintenance of information systems to support postsecondary-education planning at the state level. Differences among state-level postsecondary-education agencies in their responsibilities and analytical requirements are extensive. Therefore the project documents are designed to serve as reference frameworks from which each state can develop a more tailored approach.

In order to respond to the range of responsibilities and to the data intensity of various approaches among the postsecondary-education agencies at the state level, the project has developed five published documents (described on the inside cover), a program of staff assistance, and a series of topical and general workshops.

The five documents published as a result of the State-Level Information Base project are:

1. Postsecondary-Education Information Planning at the State Level: Overview

2. Postsecondary-Education Information Planning at the State Level: Planning Guide

3. Postsecondary-Education Information Planning at the State Level: Selection of Data to Address Planning Issues

4. Postsecondary-Education Information Planning at the State Level: Pilot-Test State Case Studies

5. Postsecondary-Education Information Planning at the State Level: Systems-Related Experiences in Eight Pilot-Test States

The Overview document briefly describes the project's purpose, history, results, the other four documents, and the availability of project-supported assistance to interested state-level planning agencies. Planning Guide and Selection of Data to Address Planning Needs are companion documents that provide overall planning concepts and a supporting framework for states considering the development of a postsecondary-education information system at the state level. Pilot-Test State Case Studies and Systems-Related Experiences in Eight Pilot-Test States are companion documents that describe the specific environmental and procedural factors related to the development of information systems in the pilot-test states during the first three years of the project.

A program of staff assistance allows interested states to draw on both project staff and pilot-test state staff for direct assistance in such areas as: (1) the initial consideration of information-system requirements, (2) the development of a plan and process for implementing the system, and (3) technical assistance in the design of data-processing support and enhancements. Project-sponsored or cosponsored workshops address topics related to current postsecondary-education planning responsibilities at the state level, with an emphasis on those that are particularly data intensive. Published monographs document the proceedings of these workshops. The use of pilot-test state staff to assist new states and the sponsorship of workshops bringing state-level planners together on topics of common interest are both intended to promote a network for communication among state-level planners and information-system developers that will continue after the project is officially completed.

Developmental History

The State-Level Information Base project was initiated in 1975 under terms of agreement from the W. K. Kellogg Foundation. The high level of interest of the Foundation's program director, Dr. Peter R. Ellis, allowed the project to evolve in a way that assured maximum sensitivity to differing state-level needs. The entrance of the National Center for Education Statistics (NCES) into the project in 1976 allowed the scope and the depth of the project to be increased. A federal component of the State-Level Information Base project (the Federal Data Core project) was initiated to help NCES reevaluate federal data needs related to postsecondary education. NCES support also provided for special state-level efforts in determining data requirements dealing with educational outcomes and adult- and continuing-education planning. The depth of the project was increased through NCES support by the addition of three general pilot-test states and by further support for the direct staff-assistance portion of the dissemination effort.

The primary review group for the project was a Task Force composed of representatives of each of the eight pilot-test agencies, four representatives

of postsecondary institutions, and two representatives of other state-level agencies with an interest in postsecondary education. The Task Force was assisted in its review by a Participant States Group composed of representatives of all postsecondary-education agencies at the state level that expressed interest in the project but had not been selected as pilot-test states. One member of the Participant States Group was selected by the group to serve as a liaison to the Task Force.

The pilot-test states were selected in the first two months of the project. Each state higher-education executive officer was invited to express interest in pilot-test participation. Selection of pilot-test states from those responding was based on several factors, including size, geographic location, authority, and status of management-information-system development. The initial five pilot-test states were California (California Postsecondary Education Commission), Hawaii (University of Hawaii), Illinois (Illinois Board of Higher Education), Kentucky (Kentucky Council on Higher Education), and New Jersey (New Jersey Department of Higher Education). The three other states that were added when NCES entered the project in 1977 were New York (Office of Higher and Professional Education of the New York State Education Department), South Carolina (South Carolina Commission on Higher Education), and Virginia (The State Council of Higher Education for Virginia).

The first year of the project was spent conducting a survey of state-level planning functions and data-collection activities. From that survey, the staff proposed a preliminary data set for review by the Task Force and Participant States Group. The review resulted in some reduction in the total size of the data set and the addition of an issues framework intended to ensure that proposed data collection in any state would be justified in terms of real state-level issues and decision requirements. Also in the first year, the first edition of the State Postsecondary Education Profiles Handbook was developed and distributed in cooperation with the Education Commission of the States (ECS) and the State Higher Education Executive Officers (SHEEO). The document provided a basic set of characteristics on each state that included a description of the organizational structure of postsecondary education and the functions of the statewide coordination and/or governing agency, a summary of basic descriptive statistics, and an inventory of state-based research studies.

The second year of the project saw the addition of NCES support (initiation of the federal component of the project, three more general pilot-test states, and special data analyses in the areas of educational outcomes in two states and adult and continuing education in two other states). Also during the second year, the second edition of the State Postsecondary Education Profiles Handbook was published, and field-review editions of the State-Level Information Base project's preliminary documents, presenting the initially defined planning issues and data set, were widely circulated for review.

Twenty copies of the draft documents were sent to each pilot-test state for review by state-level personnel and institutional staff. Six hundred copies were sent to individuals on the NCHEMS general distribution mailing

list, a list comprised mainly of institutional administrative personnel. An additional 500 copies were mailed to a selected list of reviewers, including all state higher-education agencies, other state-level postsecondary-education systems, relevant national associations, state budget offices, and selected legislative staff offices. During the review period, the project staff also met directly with staff and committees of such organizations as the State Higher Education Executive Officers (SHEEO) and the National Association of College and University Business Officers (NACUBO) to promote and accomplish the review process.

The third year of the project was devoted to a synthesis of the pilot-test experience and field-review results into drafts of the final project documents. The pilot-test phase in each of the states was completed, and documents were drafted for Task Force consideration. The Federal Data Core project's field-review drafts were circulated for review, and final linkages were made between the Federal Data Core project and the State-Level Information Base project regarding data-reference aspects of the final documents.

The fourth year of the project provided for completion and distribution of project documents and for initiation of on-site staff assistance and topical workshops. The combination of project documents, direct staff assistance, and workshops helped to promote a network for communication among state postsecondary-education planners and information-system developers so that support activities and the exchange of ideas can continue beyond the end of the funded portion of the project.

Evolution of Project Activities and Services

When the project was initiated in the summer of 1975 the objectives were:

- To develop an information base designed to support state-level planning and decisionmaking, including a standardized data set and standardized support software with the capability for interstate access
- To pilot test and install this information base in selected states
- To assist states in the implementation of the information base by training staff in its maintenance and use

As the impact of diverse state-level planning needs and approaches became clear, it became necessary that the project reflect the following changes in focus:

- From one of a standardized information base and supporting software, to the development of an adaptable and flexible data-assessment framework with individual states making their own software choices based in part upon pilot-test state experience

- From states having direct computer access to the information systems in other states, to promotion of the exchange of profile information among interested states after specific issues have been identified and specialized definitions and procedures have been developed

- From generalized cost-estimating procedures regarding the development of information systems, to cost summaries drawn from pilot-test state experience

- From the definition of an all-encompassing data universe to support state-level planning, to the definition and analysis of the decisionmaking requirements associated with common postsecondary-education issues as the basis for data selection

- From a concentration on state-level planning decisions only, to a consideration of federal planning issues, to coordination of definitions and data descriptions in areas of overlap between the state and federal data-reference documents, and to an increasing emphasis on the need for institutional involvement and consideration for institutional capabilities

The pilot-test state involvement began with the concept of installing a standardized information base and testing a standardized data set and supporting software. Their involvement then shifted to include a dissemination process as well as an evaluative process by:

- Promoting the development of new ideas and the exchange of state experiences with information systems

- Encouraging the evaluation of existing data collection and the selection of only that data needed for planning and decisionmaking needs

- Emphasizing the importance of managing data in a data-base management sense by developing an awareness of the data-integration needs within an information system

- Promoting the coordination of federal/state data needs that evolved from the State-Level Information Base project and the closely related Federal Data Core project

The pilot-test states' experiences and evaluations led to:

- Modifications to the preliminary list of common issues and related data needs

- Development of summary conclusions and recommendations regarding the overall methodology for developing information systems

- Recommendations that the project's dissemination process include workshops on specific topics of interest to the participants--thus serving the dual objectives of promoting improved state-level planning and promoting the use of State-Level Information Base project results

The final documents have been through an extensive review process that has included comments received from the national field review of the preliminary documents, the project Task Force, pilot-test states, Participant States Group, and the NACUBO Finance Management Committee and internal NCHEMS staff review.

ACKNOWLEDGMENTS

The State-Level Information Base project benefited substantially from the participation of many individuals during its three years of development. Any attempt to list all who contributed would inevitably and unintentionally suffer from important omissions. The project staff hopes that those who participate, but are not mentioned here, will understand our limitations and accept our appreciation.

Project Task Force and Pilot-Test State Representatives

As mentioned in the Preface, the primary review group for the project was a Task Force composed of representatives of the pilot-test states, of other interested state-level agencies, and of public and private postsecondary-education institutions. Task Force participation was a sensitive and time consuming responsibility, and each of the members deserves special recognition for service rendered. The members were:

Thomas Braun
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for Administration
Kentucky Council on Higher Education

Charles A. Brooks, Jr.
Coordinator of MIS Computerization
South Carolina Commission on Higher
Education

Richard Dunn
Executive Budget and Management
Officer
Wisconsin State Department of
Administration

Frederick R. Ford
Executive Vice President and
Treasurer
Purdue University

William Fuller
Executive Director
Nebraska Coordinating Commission
for Postsecondary Education

John Harrison
Associate Director for Administration
California Postsecondary Education
Commission
Horace Crandell, Higher Education Specialist at the California Postsecondary Education Commission, preceded John Harrison as the California pilot-test state representative.

Adolph Katz
Director
Office of Planning and Research
New Jersey Department of Higher
Education
J. Bruce Robertson, currently Commissioner of Higher Education for the State of Missouri, preceded Adolph Katz as the New Jersey pilot-test state representative.

Stephen W. Keto
Chief Fiscal Officer
Idaho Office of the State Board of
Education

James McGovern
Associate Director
Illinois Board of Higher Education
David Nyman, currently with Deloitte, Haskins and Sells, and Paul Lingenfelter, Associate Director for Fiscal Affairs of the Illinois Board of Higher Education, both preceded James McGovern as the Illinois pilot-test state representative.

J. Michael Mullen
Assistant Director
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Larry H. Litten
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Carleton College

Joseph A. Malik
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Liaison representative from the
Participant States Group
Norman Fischer, Institutional Research Analyst for the Washington Council on Higher Education, preceded Jane Ryland as Participant States Group liaison representative to the Task Force.

Kenji Sumida
Director of Finance
University of Hawaii

Robert Wetnight
Vice President for Finance
Western Michigan University
Robert O. Benfield, currently Vice President for Fiscal Affairs at Texas Women's University, preceded Robert Wetnight as a Task Force member.

Richard E. Willey
Budget Analyst
Pennsylvania House Appropriations
Committee

Paul Wing
Coordinator Postsecondary Research,
Information Systems and Institutional Aid
New York State Education Department

Peter Woodberry
Postsecondary Education Specialist
Rhode Island Department of Education

Ex Officio

Curtis O. Baker
Acting Head, Systems Design and
Methodology Section
Systems Design and Analysis Branch
National Center for Education Statistics
Katherine Wallman, currently with the Office of Federal Statistical Policy and Standards, preceded Curtis O. Baker as the NCES ex officio representative to the Task Force.

Participant States Group

The second advisory group for the project, composed of representatives of state postsecondary-education agencies and other organizations interested in project developments and results, also played an important role during the developmental phase. Since the group represents a large number of potential users of the project results, members of the Participant States Group (PSG) were especially valuable in assessing the relevance and utility of alternative approaches considered by the project staff and the Task Force. The PSG met the day before each Task Force meeting and presented its advice to the Task Force through a liaison representative.

The following state-level agencies and other interested groups were represented at one or more meetings of the PSG:

ALABAMA

- Alabama Commission on Higher Education

COLORADO

- Colorado Commission on Higher Education

CONNECTICUT

- Connecticut Commission for Higher Education

FLORIDA

- State University System of Florida
- Department of Education, Division of Community Colleges

GEORGIA

- University of Georgia
- Georgia Board of Regents

IDAHO*

- Idaho Office of the State Board of Education

INDIANA

- Indiana Commission for Higher Education

IOWA

- Iowa Coordinating Council for Post High School Education
- Iowa State Board of Regents

KANSAS

- Kansas Commission for Postsecondary Education
- Kansas Board of Regents

LOUISIANA

- Louisiana Board of Regents

MARYLAND

- State Board of Higher Education

MICHIGAN

- State Department of Education

MINNESOTA

- Minnesota Higher Education Coordinating Board
- Minnesota State College Board
- State Department of Finance and Information Systems

MISSISSIPPI

- Board of Trustees of State Institutions of Higher Learning

MISSOURI

- Missouri Department of Higher Education

MONTANA

- Montana University System

NEBRASKA*

- Nebraska Coordinating Commission for Postsecondary Education

NEW MEXICO

- New Mexico Board of Educational Finance

NEW YORK*

- New York State Education Department

NORTH DAKOTA

- North Dakota State Board of Higher Education

OHIO

- Ohio Board of Regents

OKLAHOMA

- Oklahoma State Regents for Higher Education

OREGON

- Oregon Educational Coordinating Commission

* Became a pilot-test state during second year of project.

PENNSYLVANIA

- Higher Education Office of the Pennsylvania Department of Education

RHODE ISLAND*

- Rhode Island Department of Higher Education

SOUTH CAROLINA*

- South Carolina Commission on Higher Education

TENNESSEE

- Tennessee Higher Education Commission

TEXAS

- Texas College and University System

VIRGINIA*

- Virginia Community College
- State Council of Higher Education for Virginia**

WASHINGTON

- Washington Council on Higher Education

WEST VIRGINIA

- West Virginia Board of Regents

WISCONSIN

- The University of Wisconsin System

Other Interested Groups

- Education Commission of the States
- National Association of Independent Colleges and Universities
- Southern Regional Education Board
- Western Interstate Commission for Higher Education

Pilot-Test States

Eleven states were involved in the pilot-test of project results. Eight of these were considered general pilot-test states in that they worked with the overall information requirements of state-level postsecondary agencies. Five of the eight, California, Hawaii, Illinois, Kentucky, and New Jersey, were involved from the beginning of the project. Three others, New York, South Carolina, and Virginia, were added during the second year.

Three other states were considered to be focused development pilot-test states in that they were primarily concerned with the information requirements associated with particular issues. Concentrating on information related to adult- and continuing-education planning were Idaho and Nebraska. Concentrating on state-level outcomes analysis were Hawaii (which was also a general pilot-test state) and Rhode Island.

* Became a pilot-test state during second year of project.
** The State Council became the pilot-test state agency.

The states and participating agencies were:

General Pilot-Test States

CALIFORNIA

- California Postsecondary Education Commission

HAWAII

- University of Hawaii

ILLINOIS

- Illinois Board of Higher Education

KENTUCKY

- Kentucky Council on Higher Education

NEW JERSEY

- New Jersey Department of Higher Education

NEW YORK

- New York State Education Department

SOUTH CAROLINA

- South Carolina Commission on Higher Education

VIRGINIA

- The State Council of Higher Education for Virginia

Focused Development Pilot-Test States

Adult and Continuing Education

IDAHO

- Office of the State Board of Education

NEBRASKA

- Coordinating Commission for Postsecondary Education

Outcomes Analysis

HAWAII

- University of Hawaii

RHODE ISLAND

- Department of Education

The role of a pilot-test state in this project involved more than testing the work of project staff. Each state-agency representative participated fully in project design and development through direct contact with staff and through membership on the project task force. All users of project results owe a debt of gratitude to the 11 pilot-test state representatives for the time they spent and for the quality of their contributions.

The name of the lead representative from each state is included in the list of project Task Force and pilot-test state representatives. Many other pilot-test agency staff participated in the project-related work in their agencies. Notable among them were Raleigh Awaya, Director of the Management Systems

Office at the University of Hawaii; Rose Bowman, Program Administrator, and Cliff Trump, Deputy Director for Academic Planning with the Office of the State Board of Education in Idaho; Steve Sabin, Assistant Director of the University of South Carolina Computer Services Division; and John Wittstruck, Coordinator of Information Systems with the Nebraska Coordinating Commission for Postsecondary Education.

Other Contributing Organizations

One of the objectives of the State-Level Information Base project is to promote linkages and a network for communication among all national and regional organizations interested in state-level planning and information systems. A network for communication is a process that requires a mutual exchange of effort, and six organizations deserve special recognition for their support of project activities.

The SHEEO/NCES Communication Network (a project of the State Higher Education Executive Officers sponsored by the National Center for Education Statistics) through its director, Jane Ryland, not only played a major role in Task Force and Participant States Group deliberations, but also served as a regular communication channel with the state coordinating and governing boards--the primary audience for the project. The Network also presents a strong opportunity for continuing dialogue among states about planning-related information requirements after the funded portion of the project is completed.

The Education Commission of the States (ECS) has been cosponsor of the State Postsecondary Education Profiles Handbook together with NCHEMS and SHEEO. Special mention should be made of Dr. John Folger, Dr. Richard Millard, and Nancy Berve, all of ECS, for their efforts on the compilation of the Handbook. The Handbook provided a timely and thorough review of the data references suggested in the Selection of Data to Address Planning Issues document and on project descriptions of costing as a data-intensive, state-level planning activity.

The National Association for College and University Business Officers (NACUBO), through its Finance Management Committee (formerly entitled the Costing Standards Committee) and the efforts of NACUBO staff member K. Scott Hughes, provided a timely and thorough review of the data references suggested in the initial project documents and the final document entitled Selection of Data to Address Planning Issues. They also reviewed project descriptions of costing as a data-intensive, state-level planning activity.

The National Association for Independent Colleges and Universities (NAICU) is developing a statement of useful state-level planning information for independent higher education. Dr. James Olliver and Dr. Virginia Fadil, codirectors of the State-National Information Network (SNIN) project, have kept in close touch with the results of the State-Level Information Base project as those results related to independent higher education in ways similar to those offered by the SHEEO/NCES Network for state higher-education agencies.

The Southern Regional Education Board (SREB) has supported the State-Level Information Base project both by cosponsoring a workshop on enrollment planning and by advising project staff on processes and uses for interstate comparative information. SREB, through the efforts of Dr. E. F. "Tex" Schietinger, Director of Research, Dr. James R. Mingle, and Dr. David S. Spence, both Research Associates, represents the best working example of interstate exchange of postsecondary-education planning information observed by the project staff during the course of the project.

The Western Interstate Commission for Higher Education (WICHE), in addition to being the parent organization of NCHEMS at the time the project began, has cooperated with project staff in reviewing data requirements associated with state-level program review, including cosponsorship of a project planning workshop on the subject. Dr. Richard Jonsen and Dr. Lilla Engdahl have worked closely with the project staff on the design and implementation of a WICHE project that surveys graduate programs and program-review practices in the western states.

NCHEMS Staff

During the four years of the State-Level Information Base project, many current and former NCHEMS staff members have been directly involved in project activities.

To Dr. Melvin Orwig and Dennis Jones goes credit for shaping the early stages of the project and for guiding the general course of all project activities during its four years. To Dr. Nancy Renkiewicz, the initial project director, goes credit for organizing the activities that first brought the proposal to life. To Marilyn McCoy goes credit for her contributions to project results through major authorship of the State-Level Information Base Field Review and Overview documents, and through her leadership of the Federal Data Core project, a federal-level activity and complementary to the State-Level Information Base project. Dr. Sidney Micek was the activity leader for the focused development work on state-level educational outcomes analysis, and Dr. Roger Sell led the staff work on adult and continuing education. To Ellen Cherin goes thanks from all project staff for her coordination of project documentation.

Other former and current NCHEMS staff members who have contributed to the development of the project are Richard Allen, Kathy Allman, Dr. Kent Caruthers, Mark Chisholm, Michael Haight, Dr. Edward Myers, Dr. James Topping, and Dr. Robert Wallhaus.

The production of the project documents has been a lengthy task, spread over two and one-half years. Special thanks go to Cynthia Labuda, for coordinating all work on the lengthy draft production process for final project documents, and to Paula Dressler, for preparing and coordinating production and distribution of the preliminary field review documents. Major contributions to preparation of drafts of the final project documents have been made by Helen Barron and Rebecca Shanks. Others who have been directly involved in the production of draft documents include Penny Baskin, Martha Hinckley, and Shirley Stucky.

Many other people have been involved in the project, and their help has also been appreciated. It should be emphasized, however, that any errors in the documents are the sole responsibility of the authors.

Project Funders

This statement of acknowledgments cannot possibly be complete without recognizing the role played by the two funding organizations and their representatives. The project was initiated under terms of a grant from the W. K. Kellogg Foundation. The willingness of that organization to make a major investment in the improvement of postsecondary-education planning at the state level deserves special recognition from all who practice postsecondary-education management at all levels. Dr. Peter Ellis, the W. K. Kellogg Foundation program director for this project, has exercised the Foundation's interests in the project in a firm and consistent manner and has been most understanding and supportive of the project staff throughout the four years.

The National Center for Education Statistics (NCES) provided supplemental funding for the State-Level Information Base project beginning in its second year and funded the complementary Federal Data Core project. The willingness of Mrs. Marie Eldridge, Administrator of NCES, to invest in improved design and use of information systems for postsecondary-education planning at the state and federal levels does much to encourage a long-term impact from the activities of the State-Level Information Base and Federal Data Core projects. Curtis O. Baker. NCES project officer, provided patient, knowledgeable guidance to the project staff throughout the project and also served as a source of accurate and timely information to pilot-test and participant states regarding NCES plans and services.

I.

INTRODUCTION

Purposes and Uses of the Case Studies Document

The purpose of the Case Studies document is to describe the pilot-test experiences of the eight agencies involved in a way that provides a background for project recommendations and for the other documents. As such, it is aimed at all people involved in such an effort, from agency leadership to technical staff and from advisory committee members to institutional staff who provide the data.

A special effort has been made to describe the different planning environment in each state. Differences in number and type of institutions, governance structure, and size and planning agency of the state agency staff all influence information system planning. Included in these case studies are descriptions of the data maintained, the analytical agenda of the agency, the developmental schedule and resources involved, and the nature of the postsecondary-education community being addressed. As with any case history, the information is specific to the environment of the state it describes. In that sense, this Case Study document is intended to provide the reader with a sense of the range of possible information-planning environments and to stimulate ideas for adaptation in new environments.

In the remainder of the document, each of the eight states is presented as a separate chapter. The final chapter, chapter X, presents the results of special efforts to identify the information required for state-level adult- and continuing-education planning (developed in cooperation with Idaho and Nebraska) and state-level educational outcomes analysis (developed in cooperation with Hawaii and Rhode Island).

General conclusions from these diverse experiences have proved difficult to reach. To the extent conclusions have been reached, they are reflected in the content of the other project documents and then in the form of planning guidance rather than as standard solutions.

II.

CALIFORNIA POSTSECONDARY EDUCATION COMMISSION

Background and Functions

The California Postsecondary Education Commission (CPEC) is a state-level coordinating commission that is "advisory to the governor, the legislature, other appropriate government officials, and institutions of postsecondary education." The Commission is broadly representative of public and private postsecondary education.

The CPEC was established in 1974, but the history of state-level coordination of higher education in California goes back much further. The Coordinating Council for Higher Education (predecessor agency to the CPEC) was created in 1960 legislation that also established in law a number of the more significant recommendations contained in A Master Plan for Higher Education in California, 1960 to 1975. That master-plan document, one of the first comprehensive state-level master plans anywhere, contained some of the most sweeping recommendations regarding institutional mission, role, and scope that have ever been set for higher education. The debate that surrounded the recommendations and their ultimate incorporation into statute served to crystalize the role of the State of California in institutional affairs at a much earlier time than most states experienced.

The state legislature continued to have a strong interest in the affairs of postsecondary education in California, and the drafting of the 1973 statute replacing the Coordinating Council with the CPEC spells out the legislature's interests and assigns responsibility for their implementation to the CPEC.

The statutory language directs the Commission to be advisory to the governor, the institutions, and other governmental offices, but the Commission's first obligations are clearly to the legislature.

The Commission is composed of 23 members: 12 members represent the general public; 6 represent the three public systems of higher education, with each governing board appointing two representatives; 2 represent the independent colleges and universities; the remaining 3 members represent, respectively, the California Advisory Council on Vocational Education and Technical Training, the Council for Private Postsecondary Education, and the State Board of Education.

Postsecondary-education institutions in California fall into five segments: the University of California, the California State University and College System, the Community College System, the independent colleges and universities, and the private postsecondary (career) schools.[1]

The three public higher-education systems represent varying degrees of state support and control. The University of California, which consists of 9 campuses, is a constitutional entity, governed by a Board of Regents. The California State University and Colleges is a statutory entity governed by a Board of Trustees and consists of 19 campuses. The 104 California community colleges, operated by 70 Community College districts, are local entities authorized by the Constitution and statutes. The community colleges are governed by local boards of trustees, receive approximately 43 percent of their support from local funds, and operate under the broad policy guidance and regulation of a statewide Board of Governors.

Four institutions of public postsecondary education do not fit clearly into the category of state- or state/locally-supported institutions: Otis Art Institute of Los Angeles, a county institution; the U.S. Naval Postgraduate School at Monterey, a federal institution; the California Maritime Academy, a state-funded merchant marine academy with its own board; and Hastings College of Law, affiliated with the University of California but with its own statutory Board of Directors.

Although the Commission is the principal agency for planning and coordinating California postsecondary education, there are a number of other state agencies that also have significant responsibilities in this area. Figure 1 shows these agencies of state government and illustrates the general administrative relationships among the various segments and sectors of postsecondary education.

The Commission's primary responsibility is to maintain the long-range planning process for California postsecondary education. It is empowered to require long-range plans from the three public segments of postsecondary education and is required to prepare and annually update a five-year-plan statement. The primary audience for the planning effort is the legislature.

The Commission is involved in both budget review and program review, but decision authority in both areas rests with the executive and legislative branches.

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1. See table 1 for a further description of the size of the postsecondary education system in California.

Table 1

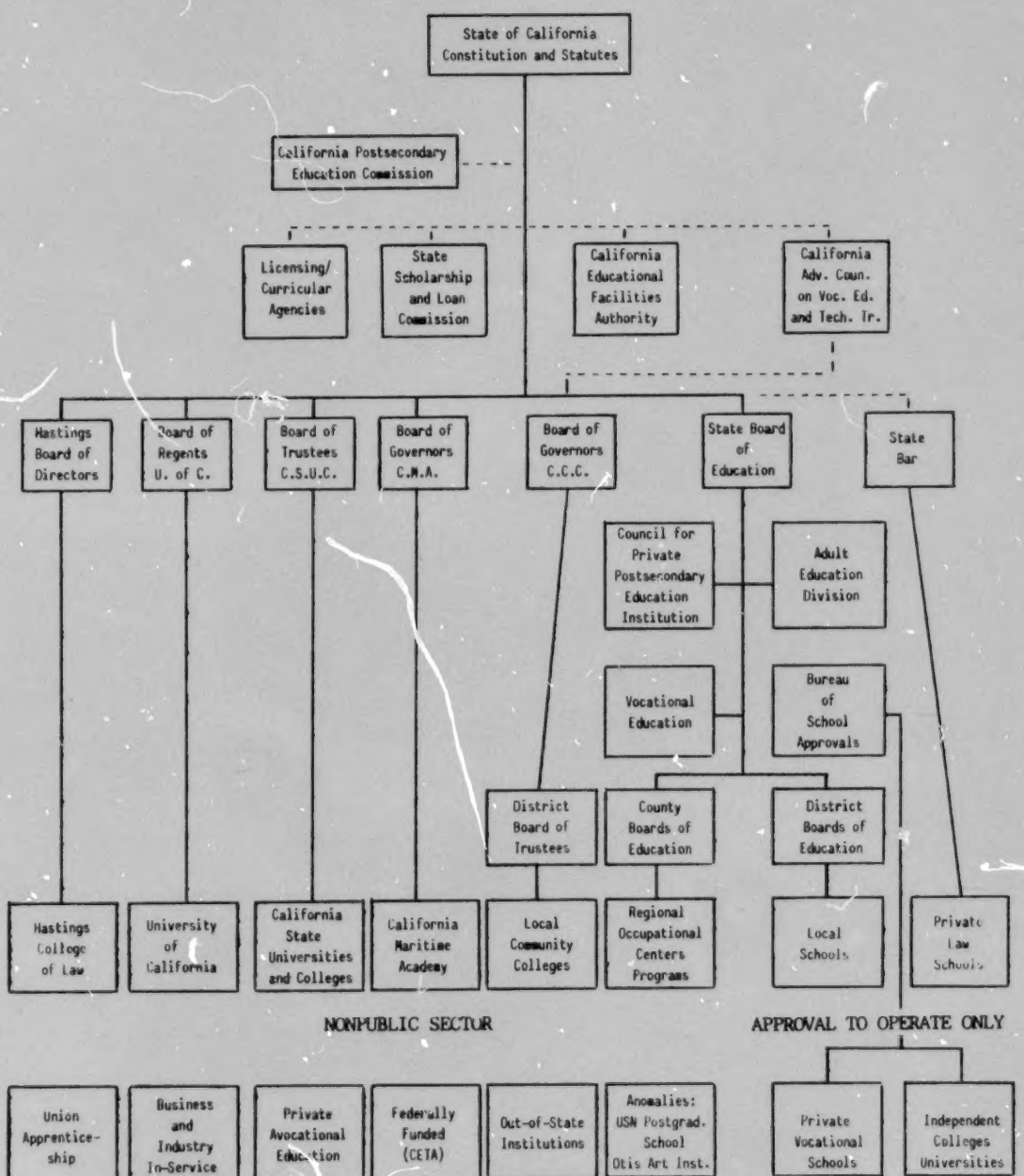
The Size of the Postsecondary-Education System In California As of Fall 1977

Segment or Sector	No. of Institutions, Campuses, or Programs	No. of Students (Head Count) Enrolled Fall 1977
University of California	9 campuses	126,505
Hastings College of Law	1 institution	1,501
Extension and Ungraded Classes	9 campuses	392,411 annual registrations
California State University and Colleges	19 campuses	312,380
Extension and Ungraded Classes	19 campuses	90,069
California Community Colleges	100 institutions	1,120,520
California Maritime Academy	1 institution	487
Otis Art Institute (Los Angeles County)	1 institution	187
U.S. Naval Postgraduate School (Federal)	1 institution	1,018
Accredited Independent Colleges and Universities	92 institutions	158,010
Private Postsecondary Vocational/Technical Schools	2,000 institutions	N/A
Adult Education (high school and unified school districts)	472	1,700,000 est.*
Regional Occupational Centers and Programs	65 centers/programs	N/A

NOTE: N/A indicates not applicable.
*figure based upon annual enrollment or contacts.

Figure 1

General Administrative Relationships
Among Sectors of Postsecondary Education in California
As of December 1975



In the area of budgeting, the legislature has made it clear that the advice of the Commission will be used in deciding enrollment levels, program support, and capital outlay. The Commission plays a similarly strong role in the review of new programs for the public sector.

Other responsibilities include planning for health-sciences education, recommending changes in mission, role, and scope, and reporting (with recommendations) on the financial condition of independent higher education.

The legislature has also declared the Commission to be the clearinghouse for postsecondary-education information and has directed that it maintain a comprehensive data base ensuring comparability of data from diverse sources.

The Commission staff is relatively small (about 50 full-time staff) and is organized into two main divisions.

Approach to Information Systems

The major activity for the Commission during its involvement in the State-Level Information Base project has been the establishment of basic data files in six broad areas: student enrollments, degrees conferred, academic and occupational programs, institutional characteristics, off-campus centers and programs, and EEO-6. The state-level offices for each of the three institutional systems have been collecting data in most of these areas for some time, but using different definitions and different levels of aggregation as appropriate to their unique decision requirements.

The task of the Commission, then, has been to identify and achieve statewide comparability of definitions for those data elements needed to achieve its own responsibilities. In addition, the Commission has responsibility for reviewing all computer-based information systems proposed by any of the public system institutions.

The Commission is the statewide coordinator for all surveys of the National Center for Education Statistics, including the HEGIS, EEO-6, and the Career School Survey. The HEGIS data became the starting point, then, for staff consideration of common intersystem data elements and definitions.

An intersegmental/interagency Technical Advisory Committee on the Development of Information Systems was established by the Commission to provide technical advice on both data selection and computer-based information-systems proposals from the institutional sectors. Representatives of each of the public systems, the independent colleges, private (proprietary) schools, the Department of Education, the Department of Finance, the legislative analysts office, and the State Student Aid Commission all sit on the Advisory Committee.

In evaluating HEGIS and considering new data elements for addition to the computerized system, the staff and advisory committee use three criteria:

1. There must be a demonstrated need for the data.

2. The data must serve as an accurate indicator of an important activity or condition.

3. The data must be definable in a fashion that permits meaningful comparisons among higher-education segments.

Though it can be argued that all HEGIS surveys meet all three of the criteria, the only ones that have been added to the computerized system are those also used in preparing the annual Information Digest, one of the key responsibilities of the Commission. The HEGIS surveys included in the computerized system are:

Form Number	Form Name and Information Collected
• 2300-1	Institutional Characteristics Institutional Name, Address, FICE code, County, Congressional District, Control, Structure, Accreditation, Admissions Requirement, Undergraduate and Graduate Tuition/Fees, Room and Board Charges, and so forth
• 2300-2.3	Opening Fall Enrollment Head-count enrollments by sex, race, full-time/part-time, and student level, including unclassified
• 2300-2.9	Upper Division and Post-Baccalaureate Enrollment by Degree Field (Though this survey was discontinued in 1976, the Commission continues to collect it in a similar format.) Head-count enrollments by sex, full-time/part-time, and student level for all major fields of study (HEGIS Taxonomy)
• 2300-2.1 2300-2.2	Degrees/Diplomas/Certificates Conferred Degrees/diplomas/certificates conferred by sex, race, type of degree, and major field of study

The other NCES survey included in the computerized system is the EEOC required EEO-6 survey that includes data on head counts and salary distribution by sex, race, contract period, and manpower categories for all employees.

All of the data listed above are compatible with the criteria used by the California Technical Advisory Committee and with the data framework in the

document Postsecondary-Education Information Planning at the State Level: Selection of Data to Address Planning Issues.

The other data in the CPEC computerized system are also compatible with the project's data-reference document (with the exception of off-campus centers and programs) and include:

CPEC File	Data
Student Enrollments	Head-count enrollments by age, with breakouts for FT/PT and student level, for public and independent institutions
	Head-count enrollments by in-state/out-of-state for first-time freshmen, graduates, and professionals for public and independent institutions
	Head-count enrollments for new undergraduate transfers, with breakouts for FT/PT and in-state/out-of-state for public and independent institutions
	Head-count enrollments for lower-division and nondegree/diploma/certificate students by major field of study, with breakouts for FTE for public institutions
Degrees Conferred	Degrees conferred by age range of students, summarized by type of degree for public institutions
Academic and Occupational Programs	Inventory of offerings by institution for public institutions
Institutional Characteristics	Total head count of faculty broken out by FT/PT, tenured/nontenured by discipline for public and independent institutions
Off-Campus Centers and Programs	Inventory of programs by off-campus center by parent institution including course enrollments.

Data Set

During the developmental and testing stage of the State-Level Information Base project, each pilot-test state was asked to indicate the specific data included in its information system. Each state did so, based upon the comparison of its information system as of May 1978 to the 1977 Field Review edition (Technical Report 85) of the State-Level Information Base project. Each state also identified other major types of data that were included in its information system at that time but were not included in the preliminary version of the State-Level Information Base project's proposed data.

The project's final data framework, contained in the document entitled Postsecondary-Education Information Systems at the State Level: Selection of Data to Address Planning Issues, is not the same as the preliminary data set. The final framework was designed to be more flexible and adaptable than that contained in Technical Report 85. Also, each state has made minor changes in its data set since May 1978. Still, the earlier comparison tables provide a reasonable current indication of how each pilot-test state's data set compares to the guidance offered by the State-Level Information Base project. Table 2 is the comparison table for the California Postsecondary Education Commission.

Agenda

Planning

The planning role of the Commission is the key to all of its responsibilities. State-level planning has been an established function in California for nearly 20 years. The 1960 master plan was concerned primarily with the three public segments of higher education and, to a more limited extent, with independent higher education. Also, it was conceived at a time when rapid growth was the most pressing problem facing California higher education. The planning process initiated by the Commission is described in the initial five-year plan entitled Planning for Postsecondary Education in California: A Five-Year Plan 1976 to 1981, published in December 1975. Proprietary schools and new patterns of adult education are now included within the scope of the planning effort. And the most recent planning effort concentrates much more on policy issues related to the management of resources in a time of stable or declining enrollments and limited growth in revenue. Also, the Commission's planning process recognizes and incorporates more fully the contributions of California's independent colleges and universities and those of the private vocational school.

The Commission has studied the planning efforts of the public segments of postsecondary education. The California State University and Colleges annually prepares an academic master-planning document that sets forth existing and projected programs over a five-year period. This continuous planning effort occurs in conjunction with the development of the system's capital-outlay program that is normally developed on a five-year basis and updated annually. The University of California works within a comprehensive planning process that produces both systemwide and individual campus plans. This planning

TABLE 2

POSTSECONDARY-EDUCATION INFORMATION SYSTEMS AT THE STATE LEVEL
INFORMATION STRUCTURE AND FUNCTIONAL USES OF DATA
Detail by Pilot-Test States
As of May 1978

State: California
Agency: Postsecondary Education Commission (CPEC)

INFORMATION STRUCTURE	DESCRIPTION OF DATA AVAILABLE (a)			STATE-AGENCY FUNCTIONS AND DATA USES										
Major Area / Data Categories/Data Items	Level of Aggregation	Mechanical Status	Institutional Scope	Federal Reporting	Long-Range Planning	Mission/Role/Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
State Information --This information is rarely used by California														
Population Characteristics of State														
- Census in total, by county, by population density	N/A	Aces	N/A							N/A	N/A	N/A	N/A	
- Distribution of family income														
- Education attainment by county for levels within elementary, secondary, college, and vocational education														
- Elementary/secondary enrollments by public/private by locality														
- High-school graduates by sex by race by locality														
- High-school-equivalency recipients by sex for state														
Occupancy Outlook of State														
- Employment summary by industry type and by occupational classification for state														
- Job applicants/openings by occupational classification for state														
Finances of State														
- State and local revenues														
- State and local appropriations/expenditures														
- Student financial aid available from state through state agency, including number of recipients (and their characteristics) and dollar amounts of aid														
National Information --This information is rarely used by California														
Occupation Outlook of Nation														
- Employment summary by industry type and by occupational classification for nation														
- Job applicants/openings by occupational classification for nation														
Finances														
- Student financial aid available from federal government directly to students														

NOTE: N/A indicates not applicable.

(a) Description of Data Available for State Agency's Use:
Level of Aggregation within Agency
ID: Institutional Detail (such as individual student data)
IS: Institutional Summary (totals by institutions only)
SS: State Summary (totals for all institutions or groups of institutions only)

Mechanized Status within Agency:
Mech: Data are, or will be, mechanized
No: No plans to mechanize hard copy
Aces: Data accessible outside agency but not maintained at agency

Institutional Scope:
Data are generally available from the following types of institutions except as noted in the table:

all public institutions, including community colleges

HEGIS required data are also available for private institutions

State: California

INFORMATION STRUCTURE Major Area Data Categories/Data Items	DESCRIPTION OF DATA AVAILABLE Level of Aggregation	Mechanical Status	Institutional Scope	STATE-AGENCY FUNCTIONS AND DATA USES Federal Reporting	Long-Range Planning	Mission/Role/Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
Institutional Information														
Institutional Characteristics														
· *HEGIS required data: name, address, FICE code, county, U.S. congressional district, control, structure, accreditation, admissions requirements, undergraduate and graduate tuition/fees, room and board charges, and so forth (on annual NCES form 2300-1, Institutional Characteristics of Colleges and Universities)*	IS	Mech	Publics and Privates	X						N/A	N/A	N/A	N/A	X
· Other data: tuition/fees separately for all levels (including lower division, upper division, and specific professional programs), housing, and commuter information N/A														
Student Characteristics														
Demographic														
· Applications, admissions, enrollments for first-time students at all levels	IS	Aces	Publics											
· *HEGIS required head counts by sex, race, FT/PT, and student level, including unclassified (on annual NCES form 2300-2.3, Fall Enrollment in Institutions of Higher Education)*	IS	Mech	Publics and Privates	X										X
· Other head counts by age by FT/PT by student level, including unclassified	IS	Mech	Pub. & Priv.											X
Geographic Origin														
· *HEGIS required head counts by state (or foreign total) for all students by sex, by program level (bachelor's-degree credit, vocational technical, first professional, graduate, unclassified, and total), and for first-time freshmen and new transfer undergraduates (on NCES form 2300-2.8, Residence and Migration of College Students)*	IS	No	Publics and Privates	X										
· Other data on head counts by FT/PT split for first-time entering students at freshman, graduate, and first-professional levels by: In-district by county (for all levels) In-state ~~by county~~ (for first-time freshmen) Out-of-state ~~by state~~ (for first-time freshmen) In-state versus out-of-state totals (for first-time graduates and professionals)	IS	Mech	Publics and Privates											X
· Other data on head counts by FT/PT split for new undergraduate transfers by in-state ~~by institution~~, by out-of-state ~~by state~~	IS	Mech	Pub. & Priv.											X
Student Ability														
· Head counts of first-time entering undergraduates by high-school rank percentiles, ACT score ranges, and SAT score ranges, including institutional averages N/A														
Financial Aid														
· Number of recipients (and their characteristics) and dollar amounts of aid available from institution and administered by institution N/A														

NOTE: CPEC is state coordinator for HEGIS reporting for public and private institutions.

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State: California

INFORMATION STRUCTURE		DESCRIPTION OF DATA AVAILABLE			STATE-AGENCY FUNCTIONS AND DATA USES										
Major Area / Data Categories/Data Items		Level of Aggregation	Mechanical Status	Institutional Scope	Federal Reporting	Long-Range Planning	Mission/Role/Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
Institutional Information (Continued)															
Student Programs and Discipline Information											N/A	N/A	N/A	N/A	
Student Programs															
- Inventory of offerings by institution		IS	Mech	Publics			X		X	X					X
- Student Demand															
- *HEGIS required head counts by sex by FT/PT by student level (upper division, first-professional I and II, graduate I and II) for all major fields of study per HEGIS taxonomy (OE form 2300-2.9, Upper Division and Post Baccalaureate Enrollment by Degree Field, last required in 1976 has been discontinued)*		IS	Mech	Publics and Privates	X										X
- Other head counts by FT/PT for other students (lower division and nondegree/diploma/certificate), by major field of study (including not designated)		IS	Mech	Publics											X
- Costs by student level within student program	N/A														
- *HEGIS required numbers of degrees/diplomas/certificates conferred by sex and race by type of degree and by major field of study for July 1-June 30 (on annual NCES forms 2300-2.1 and 2.2, Degrees and Other Formal Awards Conferred)*		IS	Mech	Publics and Privates	X										X
- Other information on number of students receiving a certificate/diploma for a program of less than one year by major field of study	N/A														
- Degrees conferred by age range of students summarized by type of degree		IS	Mech	Publics											X
- Characteristics of program completers summarized by type of degree	N/A														
- Noncompleters (and exit status) by type of degree and student program	N/A														
Discipline Information															
- Costs by course level within discipline for: Degree-related instruction; Requisite preparatory/remedial; Nondegree	N/A														
- Instructional activity: student-credit hours by course level within discipline	N/A														
- Instructional activity: student-contact hours and faculty-contact hours by course level within discipline for: Degree-related instruction; Requisite preparatory/remedial; Nondegree	N/A														

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State: California

INFORMATION STRUCTURE Major Area Data Categories/Data Items	DESCRIPTION OF DATA AVAILABLE Level of Aggregation	Mechanical Status	Institutional Scope	STATE-AGENCY FUNCTIONS AND DATA USES Federal Reporting	Long-Range Planning	Mission/Role/Scope	Budgeting	Program Review Current Programs	Program Review New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
Institutional Information (Continued)														
Personnel										N/A	N/A	N/A	N/A	
- *HEGIS required head counts by sex by FT/PT for manpower categories for all employees. (This information is reported on NCES form 2300-3 only when the form requires information on all employees instead of just full-time instructional faculty, as occurred in 1971-72, 1972-73, and 1976-77.)*	IS	No	Publics and Privates	X										X
- *EEOC required data on head counts and salary distribution by sex by race by contract period by manpower categories for all employees. (Form EEO-6 was first required in 1975 as a biennial survey and the same form was used in 1977 and 1979.)*	IS	Mech	Publics and Privates	X										X
- *HEGIS required data on full-time instructional faculty by rank by sex by contract period, including numbers tenured and contributing services; and salary and benefit information. (As of 1977, NCES form 2300-3 incorporated information previously collected by AAUP on salaries for continuing faculty.)*	IS	No	Publics and Privates	X										X
- Other data on instructional/research staff. ~~Number tenured, nontenured, and total for all time by age range~~ Number tenured, nontenured, and total for FT/PT by discipline ~~Service months by PCS programs~~	IS	Mech	Publics and Privates					X						X
Finances (*HEGIS required data collected annually on form 2300-4, Financial Statistics of Institutions of Higher Education*)														
- *HEGIS required current fund revenues in total (unrestricted/restricted combined) by source for tuition/fees, government appropriations by level, sales and services, other sources, and independent operations*	IS	No	Publics and Privates	X			X							
- Other data on unrestricted current fund revenues by source for government appropriations by level, for other sources, and for independent operations N/A														
- *HEGIS required unrestricted versus restricted current fund revenues by source for government grants and contracts by level; private gifts, grants and contracts; and endowment income*	IS	No	Publics and Privates	X			X							
- Source/use matrix of current fund revenues N/A														
- *HEGIS required current fund expenditures and mandatory transfers by function*	IS	No	Publics and Privates	X			X							
- Balance-sheet information by fund groups N/A														
- *HEGIS required statement of changes in fund balances*	IS	No	Pub. & Priv.	X			X							
- *HEGIS required details of endowment*	IS	No	Pub. & Priv.	X			X							
- *HEGIS required physical-plant indebtedness in total*	IS	No	Pub. & Priv.	X			X							
- Other physical-plant indebtedness for auxiliary enterprises, hospitals, and all other N/A														
- Retirement-fund contributions by a government source for an institution N/A														
- *HEGIS required debt outstanding, issued, and retired amounts in total for long-term and for short-term*	IS	No	Publics and Privates	X			X							
- Other debt outstanding, issued, and retired amounts for long-term for auxiliary enterprises, hospitals, and all other N/A														
- *HEGIS required total interest paid from all funds*	IS	No	Pub. & Priv.	X			X							
- Debt-service amounts and purchases of capital assets by source N/A														

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State: California

INFORMATION STRUCTURE	DESCRIPTION OF DATA AVAILABLE			STATE-AGENCY FUNCTIONS AND DATA USES										
								Program Review						
Major Area Data Categories/Data Items	Level of Aggregation	Mechanical Status	Institutional Scope	Federal Reporting	Long-Range Planning	Mission/Role/Scope	Budgeting	Current Programs	New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
Institutional Information (Continued)														
Facilities														
- *HEGIS required assignable square feet by room-use categories and by building condition (Inventory of College and University Physical Facilities, OE form 2300-7, last required this type of facilities information in September 1974. NCES form 2300-7, with the same title, will be used in 1980-81 and will be limited to institutional information about physical facilities for the mobility impaired.)*	IS	No	Publics and Privates	X						N/A	N/A	N/A	N/A	
- Station counts for class labs and classroom facilities; weekly student hours for classroom facilities N/A														
- Estimated replacement cost by building condition type N/A														

NOTE: In addition to the data already identified in this table, California's Postsecondary Education Commission has a mechanized inventory of academic and occupational programs, a mechanized inventory of off-campus centers and programs, and more extensive information on institutional characteristics.

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process insures that annual updates of the University's plans are made available to the Commission. The planning and budget-development process are closely linked for both the University of California and the California State University and Colleges.

The Board of Governors of the California Community College face unique problems in developing plans to encompass over 100 individual colleges and be administered by 70 local districts. The California Community College Board has established a process for development of a comprehensive five-year plan. The first planning document was completed during 1976.

The Commission's review and advise function, in which it responds to planning initiatives taken by the segments, complements its problem-oriented planning process--a process in which the Commission takes the initiative in defining goals, establishing priorities, and developing plans of action for postsecondary education.

To carry out its advisory role with respect to segmental planning, the Commission looks at postsecondary education as a whole, integrating the planning of each segment and determining what problems (such as gaps in needed services or unnecessary duplication of programs) exist. The issues growing out of this integration of segmental planning are then reflected in the Five-Year Plan.

In addition to reviewing and advising on segmental plans, the Commission reviews all legislation affecting postsecondary education and advises the legislature and governor of its position on selected, significant bills. Commission legislative policy is developed by the Commission and the director.

In a very real sense, publication of the Five-Year Plan and the annual five-year update of the plan (the most recent version of which was published on January 9, 1978) constitutes a report of the performance of the Commission against the list of responsibilities assigned by the legislature. It is a document more policy oriented than data intensive. Progress in the development of the state-level information system is already supporting more emphasis on quantified measures of system performance.

It is significant that the legislature envisions master planning as an ongoing process rather than as the publication of documents. While the Five-Year Plan and its 1978 update are issued in the form of documented reports, their real purpose is to provide the policy foundation for execution of the other responsibilities of the Commission.

Budgeting

The budget-review responsibility of the Commission is general in nature. Essentially, the legislature asks the Commission to participate in the executive and legislative budget-review process in any way that is appropriate. The Commission reviews institutional and segmental budget requests in terms of their consistency with planning recommendations (particularly with regard to

new program plans and proposals for new facilities and centers). But there is not a Commission approval step in the integrated flow of the budget-review process. Neither is the Commission responsible for submitting a consolidated request. It is a characteristic of the budget-approval process in California that the legislature and the legislative staff retain control over the steps in the process.

Commission participation in the process takes several forms: informal involvement in legislative and executive budget-review processes; resource-related recommendations in the master planning documents; and analyses of the financial condition and other requirements of the independent higher-education institutions. This relatively limited role in review of budgets is expected to continue for the time being.

In the early 1970s, the Council was asked to conduct unit-cost studies for public higher education. The legislature has expressed an interest in having those studies updated by 1980. The earlier studies were historical in nature, based on data collected one time as a part of the study. However, earlier cost data were not included in the state information system, and the studies are now considered to be out-of-date. The Commission staff is assessing alternative ways of updating the cost study. It is too early to tell whether the choices will suggest addition of financial and cost data to the state-level information system.

Program Review

The Commission process for review of academic and occupational programs is based on the preparation by each of the public-segment offices of a five-year academic or occupational master plan that is submitted to the Commission every year in June. Each master plan contains an inventory of existing programs, research centers, schools, colleges, and off-campus centers. It also records enrollments in all existing degree programs and projected enrollments in new programs proposed. The Commission requests a similar inventory from the independent colleges and universities and from the private vocational schools, although those institutions lie outside the Commission's program-review responsibility.

The Commission staff reviews the plans with special emphasis on apparent unnecessary duplication or proliferation, consistency with the role and scope of the institution, adequate regional distribution of programs, and apparent unmet needs.

An intersegmental council on academic plans and programs, which consists of representatives of each public segment, and of representatives of the independent colleges, vocational institutions, private proprietary institutions, the Department of Education, and the Commission staff, meets to resolve conflicts among the plans of the segments.

Agreements between segmental and Commission staffs are reached through the Intersegmental Council on the following details:

- Schedules and procedures for reviewing existing programs
- Development of procedures for evaluating the program-review process

The segment staffs review Commission staff findings and conclusions before the report is submitted to the Commission. The staffs of the segments make available to the Commission staff such information as may be required.

In addition to the meetings of the Intersegmental Program Review Council, informal discussions between the Commission staff and the respective segmental staffs are encouraged. Issues that emerge in the course of these discussions are, whenever possible, resolved by the respective staffs.

Among the possible topics for informal discussions are Commission-staff suggestions regarding:

- Potential overlapping of proposed programs
- Cooperative programs involving two or more segments
- Comments on unmet needs in postsecondary programs and services

The resulting academic and occupational program plan becomes a part of the annual five-year state plan prepared by the Commission staff.

The Commission responsibility for review of new programs is exercised as a part of this planning process. Since new program proposals are identified in the academic and occupational program plan from two to five years before their implementation, the staff is able to review them without the institutional burden that can be generated by shorter deadlines and more detailed proposals.

Both review of existing program plans and review of new programs are based exclusively upon the data submitted as part of the five-year academic and occupational master plan from the segments. There are no current plans to incorporate that data into the information system.

Information Clearinghouse

The Commission has statutory responsibility to act as an information clearinghouse and to maintain a state-level information base. In addition to the coordinating role played by the staff that directs that effort, the clearinghouse function has produced an Information Digest for California Postsecondary Education, which for the first time reports consistent data for all public and private postsecondary education in California. While the use of the Information Digest as a source of indicators for policy and planning change has not yet been established, it has that potential and is used for that purpose informally by Commission and other agency staff involved in the

Commission's various statutory-review processes. Along with the published Inventory of Academic and Occupational Programs and Directory of California Colleges and Universities, the Information Digest provides for the first time a common state-level source of information for all planners and analysts interested in postsecondary education.

Facilities Review

The facilities-review responsibilities of the Commission are limited to review of proposals for new campuses and off-campus centers. The legislature has stated that it will not authorize funds for the acquisition of sites or for the construction of new campuses and off-campus centers without the recommendation of the Commission.

Review of other types of construction proposals involves the Commission only as the legislature wishes them to be involved through the legislative and executive budget-review processes. The Commission spells out a schedule for the review of new campuses and off-campus centers. The schedule is different for each of the major segments and thus reflects segments' differing staff organizations and responsibilities. The key to the review process is the development of a needs assessment by the segment proposing the new facility. The study is the primary source of information for Commission-staff review. The Commission has spelled out the following basic information it expects to see in the study and the criteria that will be used to conduct the review:

1. Enrollment projections for each of the first 10 years of operation, and for the fifteenth and twentieth years, should be provided for a proposed campus and for each of the existing campuses in the district or system. Ten-year projections should be provided for a proposed off-campus center. Department of Finance enrollment projections must be included in any needs study. Any other projection should be fully documented.

2. The currently planned enrollment capacities of existing campuses within the district or system should be indicated.

3. The study should describe and justify the programs projected for the new campus or off-campus center.

4. An examination of the effects of establishing the proposed campus or off-campus center on existing institutions in the area should be provided with respect to enrollments, operating costs, and facilities.

5. A discussion as to how other segments, institutions, and the community were consulted during the planning process for the new campus or off-campus center should be included.

6. Characteristics (physical, social, demographic) of the location proposed for the new campus or off-campus center should be included.

7. A cost-benefit analysis of alternatives to establishing a new campus or off-campus center should be conducted.

   Analysis should include a discussion of at least the following alternatives:

   a. Establishment of an off-campus center or centers as an alternative to a new campus

   b. Use of educational television, computer-assisted instruction, "store front" operations, and the like as an alternative to a new campus or off-campus center

   c. Expansion of existing campuses

   d. Year-round operation

   e. Increased utilization of existing facilities

The Commission makes recommendations regarding all proposals for new campuses and off-campus centers, regardless of the source of funding for those centers or campuses. Also, the Commission encourages independent colleges and private vocational schools to submit their proposals for new campuses for review, to facilitate statewide planning activities of the commission.

Developmental Schedule and Resources

As mentioned elsewhere in the project documents, precise cost guidelines for estimating the time and resource requirements for an information-system-development effort have not been feasible to develop. Instead, the project and pilot-test-state staff have developed as complete a picture as possible of the time and resource environment within which each agency has been working.

Table 3 describes the chronological summary of major activities related to the state-level information system in California; table 4 describes the identifiable costs associated with the effort. In using this information as a guide to estimate the schedule and budget for another state, the user must carefully consider that the CPEC is not involved in all state-level responsibilities and obtains part of its data from system offices with their own computerized information systems. The institutional and system-office costs of providing the data are not included.

Table 3

Chronological Summary of Major Activities Related to the State-Level Information System in California

1967 Coordinating Council for Higher Education (CCHE), the predecessor agency, initiated collection of enrollment data from independent institutions. Data were maintained on hard copy.

1968 CCHE became HEGIS coordinator for public institutions. HEGIS data were maintained on hard copy.

1972 CCHE became HEGIS coordinator for independent institutions. HEGIS data were maintained on hard copy.

1974 California Postsecondary Education Commission (CPEC) replaced CCHE.

Information Systems Division was created in CPEC staff reorganization.

CPEC Standing Committee on Information Systems was created.

1975 Standing Committee on Information Systems adopted a prospectus for development of information systems and state-level data base.

CPEC electronic data processing (EDP) feasibility study was approved by Department of Finance for in-house capability.

In July, CPEC was selected to represent California as a pilot-test state in the State-Level Information Base project.

Inventory of Academic and Occupational Programs in public and independent colleges and universities was created. Inventory was maintained on hard copy.

Texas Instruments Silent 700 terminal was installed under a time-sharing option (TSO) contract with an independent contractor. Latest year and five years of historic HEGIS enrollment data and degrees conferred data were available on-line.

CCHE became coordinator for NCES Career School Survey, which was maintained on hard copy.

CCHE became coordinator for Equal Employment Opportunity Commission's EEO-6 survey (for public institutions only), which was maintained on hard copy.

1976 Position for Chief, Information Systems, was created at CPEC and filled.

Information Systems Supervisor position was created at CPEC and filled.

Computerized State-Level Information System feasibility report expansion was approved by Department of Finance.

TSO contract was discontinued. Data 100 batch terminal and two Sperry Univac key punch machines were installed. CCHE contracted with State's Teale Consolidated Data Center via remote job entry (RJE).

Data-element dictionaries were developed in cooperation with technical advisory committee for files on institutional characteristics, student-specific enrollment, and student-specific degrees conferred.

1977 Files were created on institutional characteristics, academic occupational programs, fall enrollment, degrees conferred, off-campus programs/locations/enrollment.

Programmer Analyst position was created at CPEC and filled.

CCHE published computer-generated reports (Directory of Colleges and Universities and Inventory of Academic and Occupational Programs) and produced data for Information Digest.

*Includes descriptions about the development of the information system and data-processing capability.

Table 4

Cost of the State-Level Information System in California 1977-78 and 1978-79

California Postsecondary Education Commission (CPEC)

Item		1977-78 Proposed Budget (d)	1978-79 Estimated Budget (d)
PERSONNEL			
Salaries			
Associate Director of CPEC (Partial Salary)	$10,880		
Data Base Development			
Supervisor-100%	26,700		
Associate Program Analyst-100%	20,500		
Programmer-100%	13,600		
Two part-time keypunch operators	13,900		
Information Services Section			
Supervisor-100%	33,000		
Analyst-100%	13,600		
Analyst-100%	11,800		
Total Salaries		$143,980	
Benefits		157,397	
TOTAL PERSONNEL COSTS		$290,497	
EQUIPMENT			
2 Keypunch machines rented by CPEC (about $280 rental/month)			
TOTAL EQUIPMENT COSTS		$ 4,800	
INTERAGENCY AGREEMENTS			
Terminal at CPEC Offices (about $1,200 rental/month) (a)		$ 14,400	
Processing costs at Teale Data Center (avg. $2,500/month) (b)		28,600	
Includes file building, file maintenance report processing, tape storage			
TOTAL INTERAGENCY COSTS		$ 43,000	
GRAND TOTAL (c)		$349,177	$387,118

5/31/78

(a)The terminal at CPEC is used to enter all data into the computer at the Teale Data Center. The data currently stored at Teale includes the Institutional Characteristics file, Off-Campus Location/Program Inventory file, and information from all HEGIS, EEOC, and Career School Survey forms. It is also used for quick retrieval of data via TPL, including tables used in the Information Digest, and for producing standard reports (Directory of Colleges and Universities, Inventory of Academic and Occupational Programs) using COBOL.

(b)The Teale Data Center has an IBM 370/168 computer; CPEC enters data on the computer via cards using their terminal but does not have on-line retrieval capability.

(c)Not included in this table are the publications costs of the Information Digest, Inventory of Academic and Occupational Programs, and the Directory of Colleges and Universities. (The latter two reports are computer generated).

(d)That part of the budget devoted to developmental, as opposed to operational, activities is estimated to be $57,000 per year.

Conclusion

The role of the Commission is based largely on its responsibilities for comprehensive, state-level planning and for informing state-level decision-makers in the executive and legislative branches through the use of information summaries and recommendations regarding sector plans and requests. This planning-oriented role of the Commission is an extension of a long-standing legislative involvement in state-level planning in California, initiated in the late 1950s.

In spite of the historical involvement of the Commission and its predecessor agency in state-level postsecondary-education planning, the development of a comprehensive data system is relatively recent in California. The Commission's information system, while separate from the systems of the three public segments, has duplicated the data collected by those systems only in the area of student characteristics. In that case, establishing a student-unit record was considered a less burdensome task than altering separate sector definitions to make them compatible.

The stringency of the criteria used to decide on the addition of new data elements operates to keep the Commission's data set small and to minimize duplication of data already collected by the public segments.

Broad access to the system is not a major objective, since each segment maintains its own system. The Commission's information-system staff will provide data displays in a form and on a schedule satisfactory to meet current Commission staff needs.

Full analytical use of available data has yet to be explored. The Information Digest already contains enough longitudinal data to address developing policy-related questions that will need to be addressed through the five-year-plan process. As additional years of data are needed, the link between the information system and the planning, policy-guiding responsibilities of the Commission should strengthen.

III.

UNIVERSITY OF HAWAII

Background and Functions

The University of Hawaii is a completely integrated system of higher education served by a single board of regents. The system includes a large university campus at Manoa (a suburb of Honolulu), two liberal-arts colleges, and seven community colleges located throughout the islands. Ninety percent of all Hawaii higher-education enrollments are in the University of Hawaii system. The remaining 10 percent are enrolled in four small private colleges.

The University of Hawaii at Manoa, the founding campus of the system, is a multidimensional university operation. It offers course work leading to bachelor's degrees in 73 programs, master's in 67, and doctorates in 32.

The University of Hawaii at Hilo includes a two-year community college, a four-year liberal arts college, a four-year college of agriculture, and a center for continuing education. It offers courses leading to certificates of achievement in 18 programs, associate of science degrees in 18, and associate of arts degrees and bachelor's degrees in 19.

West Oahu College is the newest member of The University of Hawaii. It is a two-year upper-division college offering programs emphasizing the liberal arts and social sciences.

There are seven community colleges in Hawaii--four on Oahu and one on each of the islands of Kauai, Hawaii, and Maui. These open, comprehensive, two-year campuses were established by the state legislature in 1964 to increase college opportunities throughout Hawaii. Enrollment in the community colleges

has grown from 5,970 head-count students in Fall 1968 to 20,773 in Fall 1977. (See figure 2 for the Organizational Chart of the University, figure 3 for the Organizational Chart of the Vice-President for Academic Affairs, and figure 4 for the Organizational Chart of the Office of the Director of Finance.)

Registrations in regular credit and other programs at all campuses of The University of Hawaii totaled 57,958 in Fall 1977. The number of students enrolled in regular credit programs was 43,888. A total of 6,325 persons, professional and others, were employed by The University of Hawaii as of October 31, 1977. The 10 campuses of The University of Hawaii (excluding West Oahu College but including The Kapiolani Community College-Ruger Campus) had a total of 4,122,380 net assignable square feet of building space in Fall 1977.

The Board of Regents, augmented by four additional members, also serves as the state postsecondary-education commission (1202 Commission) for the State of Hawaii. The Commission's first substantive project, that of developing a master plan for postsecondary education in Hawaii, is just under way.

The affairs of the University are directed by a small, system-level staff housed on the Manoa Campus but separate from its administration. The Vice-President for Academic Affairs is responsible for all program-review and planning activities and for long-range planning for the University system. The Director of Finance is responsible for all budgetary activities and for maintenance of The University of Hawaii management-information system. (See figures 3 and 4.)

The University is a unique pilot-test state agency in that its state-level functions combine responsibilities for institutional affairs (similar to those one might expect to find at the central-staff level of any major university) and responsibility for interface with other state agencies including the state legislature (typically the responsibility of separate state-level agencies in other states).

In defining the role of the system office, care has been taken to limit its responsibilities to those appropriate to coordination among the several campuses and with the governor's office and state legislature. Campus governance responsibilities are left to each local campus administration.

The two major responsibilities of the system office (in addition to the daily coordination of the affairs of the several campuses) are planning and budgeting. The planning responsibility, under direction of the Vice-President for Academic Affairs, serves to integrate the overall management processes of the university. As a part of that responsibility, the division is currently working on a long-range planning process, including provisions for systemwide program review.

The budget responsibility, under the direction of the Director of Finance, results in preparation of a single University of Hawaii budget request for presentation to the governor's budget staff and the legislature.

Figure 2

Organizational Chart of The University of Hawaii
As of February 1978

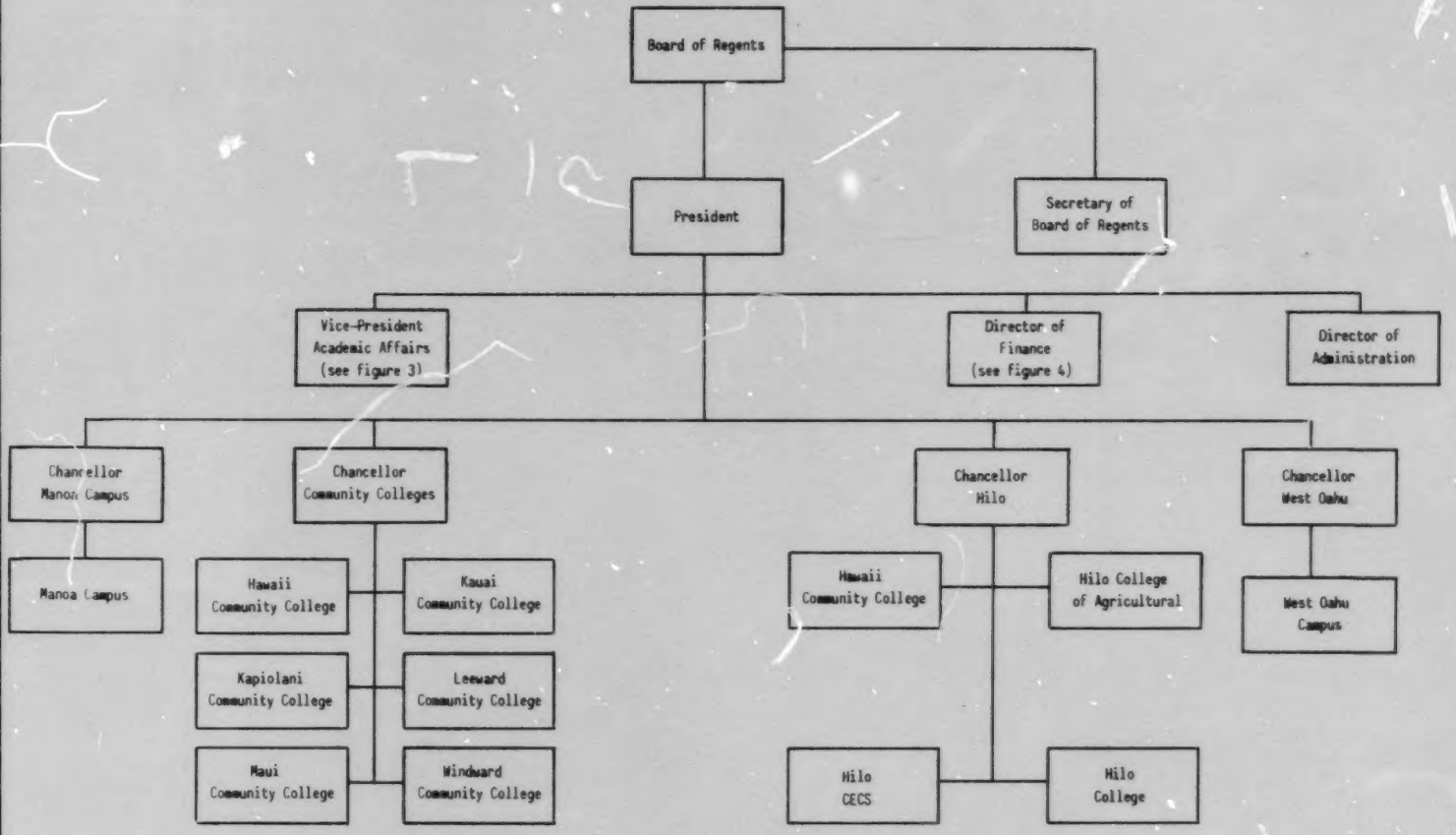


Figure 3

Organizational Chart of the
Office of the Vice-President for Academic Affairs
At The University of Hawaii
As of February 1978

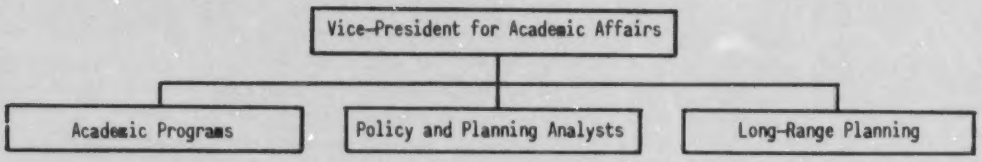
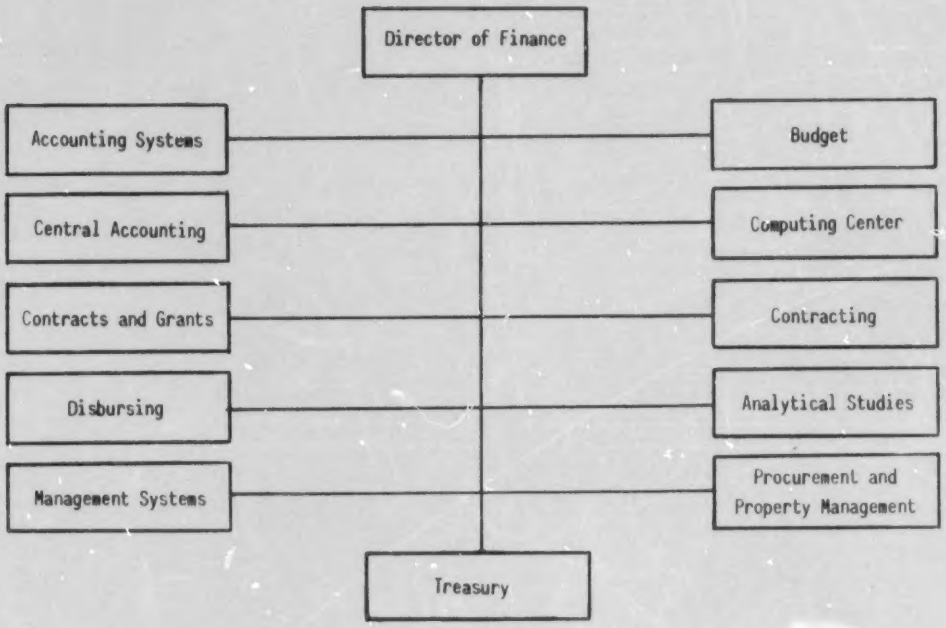


Figure 4

Organizational Chart of the
Office of Director of Finance
at The University of Hawaii
As of February 1978



Approach to Information Systems

The University of Hawaii uses common administrative data-processing systems to provide data support for its administrative activities. The system-level task is much more one of summarizing and providing access to campus operational files than one of collecting new data to support state-level functions. In a very real sense, all of the data that any higher-education agency would want to collect from institutions is available within the operational files of the information system. External data, such as population and demographic data, are available to the University but are not maintained in the computerized information system. The Management Systems Office coordinates access to the data base and also coordinates HEGIS reports for Hawaii.

As changes are made in the data system to suit operational requirements of the University, the new data also become available to anyone using the system to support planning activities. Data elements are occasionally added for reasons that have nothing to do with day-to-day University operations (for example, federal reporting requirements), but such actions are exceptional. Special data requirements (usually related to special surveys) are handled on a project-by-project basis. An example is a survey of University alumni that involves all campuses but is not included in the management-information system.

Because of the integrated governance and operational-file structure of the University and the qualifications of the staff operating the management-information system, more data are available to state-level analysts in Hawaii than most state agencies would ever attempt to collect. All data collected and maintained are justified by operational needs. Planning is just an additional dimension of use. State-level use of the system depends more upon the ability of the MIS staff to organize the files and promote access to them than it does on the data collection and processing part of the effort.

The key to the MIS effort in Hawaii is the commitment of the Management Systems Office to user services. That commitment is especially evident in the emphasis on user access to the data base. The Management Systems Office staff's requirements for the system provide an interesting indication of that commitment.

First, flexible languages have been selected for both data organization and storage (ADABASE) and for data retrieval and display (ADABASE and Customer Information Communication System). Data are stored at such a level of detail that the system can respond to ad hoc and planned queries. Second, retrieval information can be displayed in a variety of formats, increasing the change that a user can work with a familiar or comfortable display. The user can rearrange and re-sort information while on the terminal. Third, the system was built with a 5-to-10 second response time from screen to screen, allowing execution of complete queries within a few minutes. Fourth, multiple years of data are stored in the system, supporting trend analyses, one of the most common forms of queries. Fifth, data files are linked so that personnel, student, finance, and physical-facilities data can be combined from the terminal. Sixth, all data in the data base are based on common definitions for all campuses.

Finally, nontechnical users are encouraged to use the system through the simplicity of the retrieval system (called MENU) and through the training of the Management Systems Office. The MENU strategy presents screens of information to a user for selection. Each selection leads the user along a logical path defining, in successive levels of detail, all data required to perform a query to the state base.

A few of the user-oriented features of MENU deserve special mention:

- HELP routines are provided to describe what is available in the system, how to use it, what display options are available, recent changes in the system, and so forth.

- A user can save queries that are repetitive in nature. This allows the user to review policy questions that are asked many times during the year without reentering all the data. The saved query automatically converts the numeric code to English equivalents.

- A histogram feature allows cross-tabulations of two variables to identify where they intersect.

- The system allows the user to capture information being analyzed on MENU by creating a subfile that can then be further analyzed using other statistical packages or routines than those available in MENU.

- The MENU system logs each query, identifying the requester and all data elements used.

Every campus has terminal access through MENU to the data base. The Management Systems Office provides training, on request, to all interested campuses and campus subunits. The system's security arrangement limits each campus to only its own data. Only the system office has clearance to access the entire data base. The system office does provide frequent systemwide statistical summaries for all campuses so campus comparisons, at an appropriate level of aggregation, can be made by planning and institutional research staffs.

The nature of MENU queries ranges widely, including some typical one-line program review, institutional research, and response to state-level and federal data requests; and some unusual ones, like preparation for court cases, student consultants, and student-achievement evaluation.

Future plans for the management-information system include promoting more extensive use by the separate campuses, with special emphasis on the academic planning needs of individual colleges and departments on the campuses. Also, the Management Systems Office is developing analytical programs to match the needs of the coordinated management-planning effort described later in this case study.

The basic developmental work is complete. The attention of the management-systems staff can now be devoted to user services and the kinds of systems-developmental work that will support the planning and budgeting responsibilities of the system-level staff at the University.

Data Set

During the developmental and testing stage of the State-Level Information Base project, each pilot-test state was asked to indicate the specific data included in its information system. Each state did so, based upon the comparison of its information system as of May 1978 to the 1977 Field Review edition (Technical Report 85) of the State-Level Information Base project. Each state also identified other major types of data that were included in its information system at that time but were not included in the preliminary version of the State-Level Information Base project's proposed data.

The project's final data framework, contained in the document entitled Postsecondary-Education Information Systems at the State Level: Selection of Data to Address Planning Issues, is not the same as the preliminary data set. The final framework was designed to be more flexible and adaptable than that contained in Technical Report 85. Also, each state has made minor changes in its data set since May 1978. Still, the earlier comparison tables provide a reasonable current indication of how each pilot-test state's data set compares to the guidance offered by the State-Level Information Base project. Table 5 is the comparison table for The University of Hawaii.

Agenda

Planning

The University of Hawaii does not have a published master plan. This is not to indicate the absence of long-range planning, since the way in which the budget-request development process is handled by the University and by the State of Hawaii emphasizes planning-related budget analysis. To date, the need for a published master plan has not been strong enough to warrant placing it among top-priority system-level staff activities.

Within the last year, however, two significant planning activities have become staff priorities. The first is the development of a planning statement addressing the broad needs of Hawaii residents for postsecondary-education services, with emphasis on the needs of independent higher education and of the proprietary sector. The assignment is a project of the Board in its capacity as the 1202 Commission. The assignment for developing the planning statement lies with the secretary to the Board of Regents and a consultant with extensive experience in and a strong reputation for research within the University. The 1202 staff intends to base the planning statement on broad economic and population indicators for the State of Hawaii. A regular survey of graduates of the University, conducted periodically during the last several years, will also be updated by the 1202 Commission staff.

TABLE 5

POSTSECONDARY-EDUCATION INFORMATION SYSTEMS AT THE STATE LEVEL
INFORMATION STRUCTURE AND FUNCTIONAL USES OF DATA
Detail by Pilot-Test States

As of May 1978

State: Hawaii
Agency: Board of Regents of University of Hawaii

INFORMATION STRUCTURE	DESCRIPTION OF DATA AVAILABLE (a)			STATE-AGENCY FUNCTIONS AND DATA USES										
Major Area / Data Categories/Data Items	Level of Aggregation	Mechanical Status	Institutional Scope	Federal Reporting	Long-Range Planning	Mission/ Role/ Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
State Information	N/A		N/A							N/A		N/A		
Population Characteristics of State														
· Census in total, by county, by population density		Aces			X	X	X				X		X	
· Distribution of family income					X	X		X	X					
· Education attainment by county for levels within elementary, secondary, college, and vocational education		Aces									X		X	
· Elementary/secondary enrollments by public/private by locality		Aces			X	X		X	X		X		X	
· High-school graduates by sex by race by locality		Aces									X			
· High-school-equivalency recipients by sex for state		Aces									X			
Occupancy Outlook of State														
· Employment summary by industry type and by occupational classification for state		Aces			X	X	X	X	X		X		X	
· Job applicants/openings by occupational classification for state		Aces											X	
Finances of State														
· State and local revenues		Aces			X	X	X	X	X					
· State and local appropriations/expenditures		Aces			X	X		X	X					
· Student financial aid available from state through state agency, including number of recipients (and their characteristics) and dollar amounts of aid N/A		Aces												
National Information														
Occupation Outlook of Nation														
· Employment summary by industry type and by occupational classification for nation		Aces			X	X		X	X		X		X	
· Job applicants/openings by occupational classification for nation													X	
Finances														
· Student financial aid available from federal government directly to students N/A	▼		▼							▼		▼		

NOTE: N/A indicates not applicable.

(a) Description of Data Available for State Agency's Use:
Level of Aggregation within Agency
ID: Institutional Detail (such as individual student data)
IS: Institutional Summary (totals by institutions only)
SS: State Summary (totals for all institutions or groups of institutions only)

Mechanized Status within Agency:
Mech: Data are, or will be, mechanized
No: No plans to mechanize hard copy
Aces: Data accessible outside agency but not maintained at agency

Institutional Scope:
Data are generally available from the following types of institutions except as noted in the table:

all public institutions

NOTE: All data are available at an institutional detail level since they serve the operational needs of the University.

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INFORMATION STRUCTURE	DESCRIPTION OF DATA AVAILABLE			STATE-AGENCY FUNCTIONS AND DATA USES										
Major Area / Data Categories/Data Items	Level of Aggregation	Mechanical Status	Institutional Scope	Federal Reporting	Long-Range Planning	Mission/ Role/ Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
Institutional Information	ID	Mech	Publics							N/A		N/A		
Institutional Characteristics														
- *HEGIS required data: name, address, FICE code, county, U.S. congressional district, control, structure, accreditation, admissions requirements, undergraduate and graduate tuition/fees, room and board charges, and so forth (on annual NCES form 2300-1, Institutional Characteristics of Colleges and Universities)*				X	X								X	
- Other data: tuition/fees separately for all levels (including lower division, upper division, and specific professional programs), housing, and commuter information														
Student Characteristics														
Demographic														
- Applications, admissions, enrollments for first-time students at all levels					X		X	X	X		X			
- *HEGIS required head counts by sex, race, FT/PT, and student level, including unclassified (on annual NCES form 2300-2.3, Fall Enrollment in Institutions of Higher Education)*				X	X		X	X	X		X			
- Other head counts by age by FT/PT by student level, including unclassified														
Geographic Origin														
- *HEGIS required head counts by state (or foreign total) for all students by sex, by program level (bachelor's-degree credit, vocational technical, first professional, graduate, unclassified, and total), and for first-time freshmen and new transfer undergraduates (on NCES form 2300-2.8, Residence and Migration of College Students)*				X	X		X				X			
- Other data on head counts by FT/PT split for first-time entering students at freshman, graduate, and first-professional levels by: In-district by county (for all levels); In-state by county (for first-time freshmen); Out-of-state by state (for first-time freshmen); In-state versus out-of-state totals (for first-time graduates and professionals)					X		X				X			
- Other data on head counts by FT/PT split for new undergraduate transfers by in-state by institution, by out-of-state by state					X		X				X			
Student Ability														
- Head counts of first-time entering undergraduates by high-school rank percentiles, ACT score ranges, and SAT score ranges, including institutional averages					X	X	X				X			
Financial Aid														
- Number of recipients (and their characteristics) and dollar amounts of aid available from institution and administered by institution					X		X							

NOTE: HEGIS and EEO-6 forms are filled out from information available through Hawaii's detailed operational system.

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State: Hawaii

INFORMATION STRUCTURE Major Area Data Categories/Data Items	DESCRIPTION OF DATA AVAILABLE Level of Aggregation	Mechanical Status	Institutional Scope	STATE-AGENCY FUNCTIONS AND DATA USES Federal Reporting	Long-Range Planning	Mission/Role/Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
Institutional Information (Continued)	ID	Mech	Public							N/A		N/A		
Student Programs and Discipline Information														
Student Programs														
· Inventory of offerings by institution					X	X		X	X					
· Student Demand														
· *HEGIS required head counts by sex by FT/PT by student level (upper division, first-professional I and II, graduate I and II) for all major fields of study per HEGIS taxonomy (OE form 2300-2.9, Upper Division and Post Baccalaureate Enrollment by Degree Field, last required in 1976 has been discontinued)*				X	X		X	X	X					
· Other head counts by FT/PT for other students (lower division and nondegree/diploma/certificate), by major field of study (including not designated)											X			
· Costs by student level within student program							X							
· *HEGIS required numbers of degrees/diplomas/certificates conferred by sex and race by type of degree and by major field of study for July 1-June 30 (on annual NCES forms 2300-2.1 and 2.2, Degrees and Other Formal Awards Conferred)*				X	X			X	X					
· Other information on number of students receiving a certificate/diploma for a program of less than one year by major field of study														
· Degrees conferred by age range of students summarized by type of degree													X	
· Characteristics of program completers summarized by type of degree														
· Noncompleters (and exit status) by type of degree and student program														
Discipline Information														
· Costs by course level within discipline for:														
Degree-related instruction														
Requisite preparatory/remedial					X		X	X	X					
Nondegree					X		X	X	X					
· Instructional activity: student-credit hours by course level within discipline														
· Instructional activity: student-contact hours and faculty-contact hours by course level within discipline for:														
Degree-related instruction														
Requisite preparatory/remedial														
Nondegree														

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State: Hawaii

INFORMATION STRUCTURE	DESCRIPTION OF DATA AVAILABLE			STATE-AGENCY FUNCTIONS AND DATA USES										
Major Area / Data Categories/Data Items	Level of Aggregation	Mechanical Status	Institutional Scope	Federal Reporting	Long-Range Planning	Mission/ Role/ Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
Institutional Information (Continued)														
Personnel	ID	Mech	Publics							N/A		N/A		
- *HEGIS required head counts by sex by FT/PT for manpower categories for all employees. (This information is reported on NCES form 2300-3 only when the form requires information on all employees instead of just full-time instructional faculty, as occurred in 1971-72, 1972-73, and 1976-77.)*				X	X			X	X				X	
- *EEOC required data on head counts and salary distribution by sex by race by contract period by manpower categories for all employees. (Form EEO-6 was first required in 1975 as a biennial survey, and the same form was used in 1977 and 1979.)*				X									X	
- *HEGIS required data on full-time instructional faculty by rank by sex by contract period, including numbers tenured and contributing services; and salary and benefit information. (As of 1977, NCES form 2300-3 incorporated information previously collected by AAUP on salaries for continuing faculty.)*				X	X			X	X				X	
- Other data on instructional/research staff:														
Number tenured, nontenured, and total for full-time by age range														
Number tenured, nontenured, and total for FT/PT by discipline					X		X	X	X					
Service months by PCS programs														
Finances *(HEGIS required data collected annually on form 2300-4, Financial Statistics of Institutions of Higher Education)*														
- *HEGIS required current fund revenues in total (unrestricted/restricted combined) by source for tuition/fees, government appropriations by level, sales and services, other sources, and independent operations*				X	X		X							
- Other data on unrestricted current fund revenues by source for government appropriations by level, for other sources, and for independent operations					X		X							
- *HEGIS required unrestricted versus restricted current fund revenues by source for government grants and contracts by level; private gifts, grants and contracts; and endowment income*				X	X		X							
- Source/use matrix of current fund revenues					X		X							
- *HEGIS required current fund expenditures and mandatory transfers by function*				X	X		X							
- Balance-sheet information by fund groups					X		X							
- *HEGIS required statement of changes in fund balances*				X	X		X							
- *HEGIS required details of endowment*				X	X		X							
- *HEGIS required physical-plant indebtedness in total*				X	X		X							
- Other physical-plant indebtedness for auxiliary enterprises, hospitals, and all other					X		X							
- Retirement-fund contributions by a government source for an institution							X							
- *HEGIS required debt outstanding, issued, and retired amounts in total for long-term and for short-term*				X	X		X							
- Other debt outstanding, issued, and retired amounts for long-term for auxiliary enterprises, hospitals, and all other					X		X							
- *HEGIS required total interest paid from all funds*				X			X							
- Debt-service amounts and purchases of capital assets by source					X		X							

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State: Hawaii

INFORMATION STRUCTURE	DESCRIPTION OF DATA AVAILABLE			STATE-AGENCY FUNCTIONS AND DATA USES										
Major Area Data Categories/Data Items	Level of Aggregation	Mechanical Status	Institutional Scope	Federal Reporting	Long-Range Planning	Mission/ Role/ Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
Institutional Information (Continued)														
Facilities · *HEGIS required assignable square feet by room-use categories and by building condition (Inventory of College and University Physical Facilities, OE form 2300-7, last required this type of facilities information in September 1974. NCES form 2300-7, with the same title, will be used in 1980-81 and will be limited to institutional information about physical facilities for the mobility impaired.)*	ID	Mech	Publica	X	X		X	X	X	N/A		N/A		
· Station counts for class labs and classroom facilities; weekly student hours for classroom facilities					X			X	X					
· Estimated replacement cost by building condition type					X									

NOTE: Because The University of Hawaii's mechanized information system serves the detailed operational requirements of a university, the Board of Regents has access to many data elements, including individual-specific data not identified in the table.

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The second major planning development in the last year was announced in a May 1977 memorandum from the University's Vice-President for Academic Affairs. To develop better understanding and integration of the academic program planning, operating budget, and capital-improvement planning processes, the memorandum called for "planning products that are interrelated, are consistent in substance, and retain continuity in an overall direction from one biennium to another."

As one aspect of the new planning effort, a mission and scope statement has been developed by the staff of the Division of Academic Affairs and is being circulated within the system. After extensive consultations and discussions, this statement will be adopted by the Board of Regents and serve as the basic document that will set the general directions of the University. The document will not directly impact the University's management-information system. However, its emphasis on improved planning will result in increased demands for analytical information, including measurable indicators of goals and outcomes.

The integrated planning approach spelled out in the May 1977 memo ties University planning and budgeting together in a six-year cycle. The integrated process, schematically described in figure 5, is intended to guide campus- and system-level planning in such a way that the same planning products can serve both purposes.

The completed process is intended to provide:

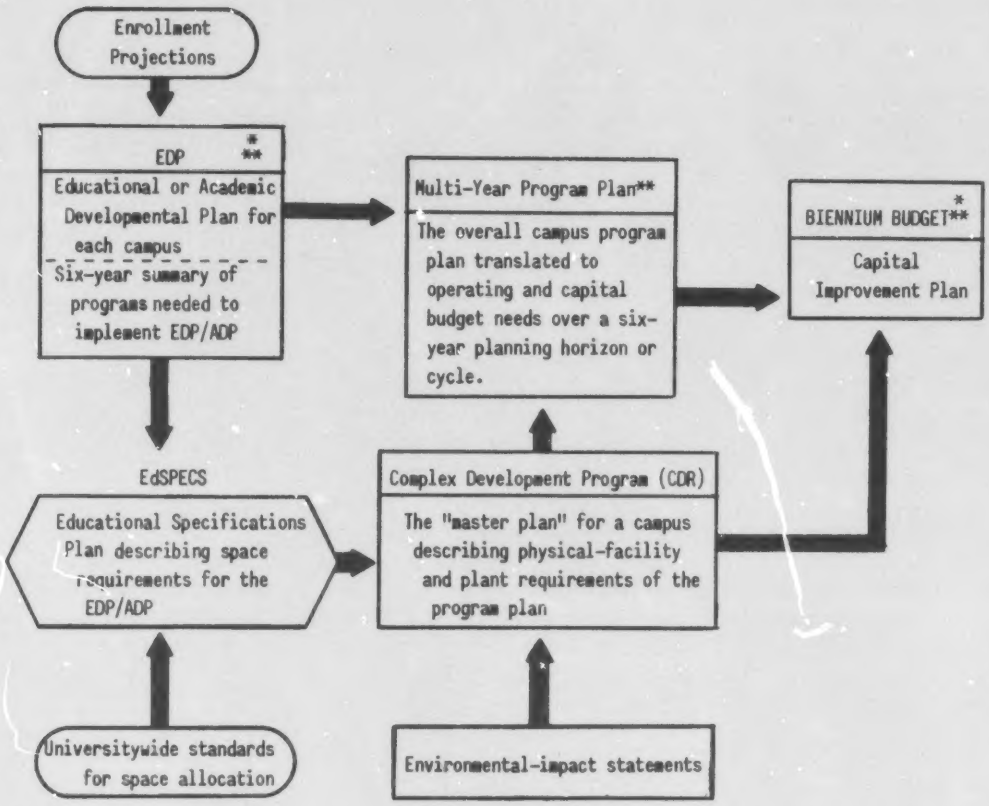
- A sequential integration of basic planning and decision steps for academic programs, physical plant, and budget development
- An opportunity for all levels of University administration and the Board of Regents to review products of each phase of the planning at stages appropriate for change, if desired
- A better exposure of the various steps of the planning process and of the assumptions upon which plans are based, in "digestible" portions
- A step-by-step process for preparing The University of Hawaii planning and role and scope document without unnecessary system-level descriptive intervention but with the opportunity for system-level adjustments as necessary to accomplish systemwide coordination and to produce the budget requests for the University

The use of a six-year cycle allows each biennium plan to be a part of the longer planning horizon. Specific plans and budgets will be updated biennially (or annually) as program changes and workload increases suggest changes.

While not shown in figure 5, an important aspect of the integrated planning process is its relationship to the overall mission, role, and scope

Figure 5

Integration of Key Planning Processes and Products At The University of Hawaii


Enrollment Projections
EDP * **
Educational or Academic Developmental Plan for each campus
Six-year summary of programs needed to implement EDP/ADP
Multi-Year Program Plan**
The overall campus program plan translated to operating and capital budget needs over a six-year planning horizon or cycle.
BIENNIUM BUDGET* **
Capital Improvement Plan
EdSPECS
Educational Specifications Plan describing space requirements for the EDP/ADP
Complex Development Program (CDP)
The "master plan" for a campus describing physical-facility and plant requirements of the program plan
Universitywide standards for space allocation
Environmental-impact statements

*To be reviewed by the Board of Regents
**Key planning products

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statement for the University, which sets the tone for much of the planning and management activities in the system. The key planning products of the process provide the basic content for all system-level plan development and review activities. The key products are:

- The Educational Development Plan (EDP), the central document of a campus that describes its educational philosophy and mission, its program directions, the community and clientele it intends to serve, the critical issues it faces in the six-year time frame, and the estimated resources required to carry out its objectives. The closely related Program Summary translates and summarizes the broad directions of the EDP into a six-year plan, tying together programs, capital projects, and the operating budgets.

- The Complex Development Report (CDR), the "master plan" of the campus that describes plans for the physical facilities and plant needed to support program execution.

- The Multiyear Program Plan (Six-Year Plan) that translates the overall campus-program plan and direction into operating and capital budget needs for a six-year planning period.

- The Biennium Budget, including Capital Improvement Program (CIP), that provides a more detailed two-year slice of the Six-Year Plan. This is the document that has traditionally received the most attention in planning.

The beginning step in the integration process is the EDP. This document has been a part of earlier planning efforts and needs only to be revised to suit the new six-year period. The system office has suggested frameworks for the EDP and accompanying Program Summary, but they are optional to the campuses and other planning units. (Figure 6 describes the suggested EDP framework and figure 7, the suggested framework for the Campus Program Summary.)

The EDP/Program Summary document (which should also include any department/division planning information, accreditation reports, or program self-studies that support proposed changes) is submitted to the Board of Regents for review.

The Universitywide factors in the EDP/Program Summary that will play a major role in the Board of Regents review are:

- The mission and educational philosophies of the unit or campus and its educational philosophies

- The reality and credibility of the enrollment projections contained in the EDP

- Conformity to current University and Regent policy and past actions of the Regents regarding the specific campus

Figure 6

A Framework for the Educational Developmental Plan For The University of Hawaii Campuses

Purpose

- The purpose of the EDP is to reflect the direction of academic and other programs of the campus and serve as a basis for budgetary decisions. The EDP should be the result of the collective program development and review processes of each campus.

Uses of EDP

- Tells story of unit/campus--what it is, what it does, what it will do over a specified period of time.
- Is foundation for budget planning (operating budget, CIP, priorities).
- Acts as basis for campus and University accountability.
- Provides communication among various levels of administrators and faculty.

Components

Foreword-- general education philosophy of the campus

I. Mission

- A. Role and clients to be served
- B. Relationship to other parts of the University
- C. Relationship to the community
- D. Relationship to the state, national, and international arenas

II. Philosophy and assumptions

- A. Philosophy on student learning
- B. Philosophy of faculty renewal and vitality
- C. Philosophy on instructional methods
- D. Assumptions upon which this EDP is being developed:
  1. Internal environment and constraints
  2. External environment and constraints

III. Program and scope

- A. Description of major programs and goals (Instruction, Research, Public Service)
- B. Emphasis for each program, including degrees awarded, majors, and program options for Instruction
- C. Identification of planned new programs in each major program and those being phased out
- D. Student-enrollment picture (by program option or discipline)

IV. Resources

- A. Faculty (size, description of strengths, description of renewal and vitality plans)
- B. Instructional support (status of equipment, supplies, travel, services)
- C. Facilities support (general description and pending capital needs)
- D. Community support (ties to community agencies and resources)

V. Priorities on a six-year timetable, by major programs

VI. Estimated general six-year budget by major programs and program options or discipline area

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Figure 7

Suggested Campus-Program-Summary Framework For The University of Hawaii

I. Mission of campus

A. Campus priorities and emphases
B. Goals of major programs (Instruction, Research, Public Service)
   1. Definitions
C. Unique strengths relative to overall University or unit mission
D. Critical issues to address

II. Assumptions of operating environment

A. Growth patterns
B. Resource patterns, including cost data
C. Facilities program patterns
D. Administrative flexibility

III. Program*-direction information (estimations)

Program Type	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83
Continuing Programs 1. 2. 3.	ABC**	ABC	ABC	ABC	—	—	
New Programs Planned 1. 2. 3.							
New Program Implementation 1. 2. 3.							

IV. Estimated Capital Needs

Description of Need***	Estimated Capital by Year					
	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83

V. Other Comments

*Program is (1) any sequence of courses and educational experiences that is composed of an area of concentration and leads to some form of certification of major, option, or degree and (2) any grouping of activities that constitutes a support function such as student service, academic support, and institutional support.

**A = Total Expected Enrollment/Number of Majors Planned
B = FTE Faculty (planned)
C = Operating Budget (estimated) by program area, or discipline if available, including instructional equipment

***Distinction expected between (1) enrollment-related and programmatic needs and (2) renovation needs and new facility contracts.

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- Aspects of the EDP that affect other University units and programs

- Consistency of the current biennial budget for each program with the recommendations of the executive budget to the legislature

- Identification of current programs, their relationship to the Regent-approved list, and the program-review schedule

- Identification and processing of new programs for which tentative plans are being made for program approval

Budgeting

The State of Hawaii is nationally known for the performance-budgeting orientation of its executive budget-development process. As early as 1968, the state attempted to link resource allocations and performance measures in a Program Planning and Budgeting (PPB) system that would require all state agencies, including the University, to identify and report measures of program effectiveness.

Based on executive-branch interest in programmatic (versus line-item) analysis and legislative interest in some way of assessing quality, the effort led to 1970 legislation requiring the Department of Budget and Finance to design, develop, and disseminate the new PPB system.

The three main features of the system were (1) a six-year program and financial plan to be submitted annually by each state agency; (2) an executive budget to be submitted in December of every even-numbered year for use in the biennial legislative session; and (3) an annual variance report, comparing actual to planned and budgeted forecasts of agency expenditure and performance.

Shifting from a line-item to a program format was not difficult for the University, thanks to earlier adoption of the NCHEMS Program Classification Structure. Development of effectiveness measures to support the new structure was a more difficult task.

The responsibility for developing measures for the University has gradually shifted from the Department of Budget and Finance to the University. Currently, the system office is working with NCHEMS Outcomes staff and representatives of the campuses to identify, review, and evaluate proposed measures for possible incorporation into the 1979-81 budget request.

While developing effectiveness measures has not happened as quickly as expected, the executive-budget process continues with a strong program and policy orientation. The University's approach reflects that orientation, partly because the University is a department-level agency in the state's executive structure and partly because of the management orientation of the system-level staff.

The staff's commitment is captured well in this introduction to the 1978-81 Budget Policy Paper 1.0 dated September 29, 1977:

> A budget is a reflection of the relative value the organization places on the many activities required to accomplish its missions. It is also an instrument of policy by which the missions of the institutions may be advanced and by which objectives supporting the missions may be accomplished. In addition, budgets are social and political documents which reflect responsiveness to specific clientele and their needs, assessments of larger social needs to which the organization may respond, and means to secure additional resources to carry out basic mission. Moreover, an institution's budget is a planning and decisionmaking document, reflecting decisions which set directions which cannot be fully accomplished in one budget cycle. Finally, the budget is a document of control and authority, representing restraints and opportunities within the organization.
>
> To be effective, budget building must be undertaken with full realization of the various facets of the nature of the budget and with the realization that the budget, as the dollar manifestation of decision making, is the most important single item by which the institution's priorities, plans, values, and policies are made real. Budgeting must also be a continuous process, as distinct from a once a year construction of an inflexible document. [p. 1]

Refreshingly, the system office has chosen to implement the process not by further adjustments in budget forms, but by a declared intention to focus system-level analysis on the following aspects of the budget formats as they already exist:

- Evidence of more precise advanced planning at the campus and planning unit level
- Justification for increases requested
- Actions that will achieve more equitable allocation within the University
- Assessment of quality indicators
- Program involvement in planning and decisionmaking

The first step in the process is development and distribution by the system office of the following information items to provide major planning units and campuses with assistance and broad budgeting-reference points:

A. The context of budget building

B. Enrollment information

1. Official enrollment projections for the second year of current biennium and for each year of the next biennium (in head count and FTE)

   a. In totals
   b. In totals, by level of subunit (college, institute, program) and by discipline
   c. In totals by majors by level

2. Enrollment history for previous biennium and current year (in head count and FTE)

   a. By level, by semester, annual average
   b. By majors

C. Budgetary history and analyses

1. By totals by program-budget categories for previous biennium and current year
2. By totals by organizational subunits
3. Unit costs and other related analyses

The statement of budget objectives and priorities provides an opportunity for the Board of Regents to provide policy guidance for the budget process before institutions begin developing alternatives and completing forms. Among the objectives and priorities set by the Board for 1978-81 are:

- A policy of controlled enrollment growth
- Maintenance of program quality by reallocating funds within a current-level revenue assumption
- Requests for increases over current level only for selected program areas approved by the University president in advance; start-up costs for new, less labor-intensive methods of delivering instruction and services; and incremental funding for selected extended degree programs, especially in the neighboring islands

The campuses then prepare internal budget instructions, priorities, and procedures consistent with Board of Regents policy. Budget proposals are expected to be initiated at the program organization level (department, institute, division) and to involve full consultation with and information for faculty and students at the college and campus level.

The chancellors of each four-year campus and of the community-college system review the budget proposals for consistency with Universitywide guidelines and policy objectives and recommend a budget to the President. The president reviews each chancellor's recommendations and presents the University Budget to the Regents for approval in April or May preceding the biennial legislative session. Upon approval, the University Budget becomes known as the Regents Budget and is the only document used to communicate with the executive and legislative branches.

In December, preceding the legislative session, the University is notified of the governor's recommendations. The University administration analyzes variances between the governor's budget and the Regents Budget, developing appropriate strategies for adjusting University plans and actions to the governor's budget.

In March or April, when legislative appropriations for the University are known, approximately 90 percent of the anticipated final allocation is approved by the president for each campus. Allocations are based on the budget plans contained in the Regents Budget.

An important element of the budget guidelines prepared by the system-level staff is unit-cost data, prepared by the Division of Finance and Administration and intended to guide campus estimates of the resources required to support programs plans.

Two annual cost studies support this portion of the guidelines, one for the community colleges and one for all other campuses of the University. Both are based on the NCHEMS Information Exchange Procedures, adapted to suit The University of Hawaii cost-study requirements.

The community-college study attempts to reflect unit costs of General Education and Vocational Education. Where separately identifiable, computations are based on actual ledger costings. In most situations, however, distribution of costs was necessary. Estimates on instructional activities were aggregated by departments or division and computed to determine a cost per semester credit hour.

Cost information was obtained from three basic sources:

- Budgetary and financial records
- Student-information system
- Faculty-staff information system

For the other campuses, three separate computations are made as follows:

- General funds excluding employee benefits
- General funds including employee benefits

- All funds including employee benefits

The University study is supported by the following information:

I. From budget and fiscal records:

   A. Direct costs of instruction by departments and by colleges/schools, categorized as (1) personal services (including student help), (2) current expenses (supplies, communications), (3) equipment, and (4) employee benefits

   B. Total indirect expenditures of the University, categorized as: (1) academic support including (a) Dean's office, (b) computing center (allocated), (c) library, and (d) other costs identified and allocated to the college/school as instructional and (2) institutional support including (a) general and administrative, (b) operations and maintenance, (c) student services, and (d) State of Hawaii services (allocated)

II. From the student-information system:

   A. A listing of all courses taught each semester, categorized by levels as follows: (1) lower undergraduate (freshman and sophomore), (2) upper undergraduate (junior and senior), and (c) graduate

   B. An indication of the credit hours given for each course, the name of the instructor for each course, the number of students enrolled in the course, and the total semester credit hours for each course (semester hours multiplied by the number of students enrolled) by academic departments and by colleges or schools

III. From the faculty-staff information system: faculty salary information by student level of classes taught

IV. Directly from the institutions: indirect-cost studies conducted for federal contracts and grants purposes

Program Review

Board of Regents approval is required before any campus of the University initiates a new program. The process for new program approval is more like that of a major research university than that of a state with a separate coordinating agency.

New programs are proposed as part of the planning and budgeting processes described earlier. If a program proposal survives the various levels of budget review, and if the legislative appropriation contains funds for it, then it is considered approved so far as the Board of Regents is concerned.

Five years after an approved program is started, the institution responsible for the program is required to conduct an evaluation and report the result of the evaluation to the system office.

So far, the system office has not conducted a general evaluation of existing programs. If such a process is established, it will most likely happen as a refinement in the management planning process described earlier.

Institutional Research

Institutional research is not usually a function of a state postsecondary-education agency. But The University of Hawaii is a unique postsecondary-education organization with an unusually detailed and well-integrated data base. Due largely to the emphasis that has been placed on ready access to the data base, institutional research agendas form a major use.

The Office of Analytical Studies and the Contracts and Grants Accounting Office are responsible for conducting cost studies and producing other analytical reports that support system and campus planning and budgeting efforts. Studies include unit costs (costs/SCH, costs/FTE major), faculty productivity, and enrollment forecasts. In addition, a simplified version of the NCHEMS Resource Requirements Prediction Model (RRPM) is maintained as an aid in analyzing alternative budget strategies, and an annual alumni survey is updated.

The community-college system also has a research office that has maintained a student-flow analysis for approximately three years. The project provides community-college campus staff with extensive information on student characteristics, application/acceptance/registration patterns, persistence rates, and current activities and characteristics of graduates.

The network of system-level and campus institutional researchers has been responsible for much of the outcomes developmental effort. Responsibility for proposing and testing the feasibility of campus-level measures has been assigned to the researcher network.

Finally, the Management Systems Office produces an annual information digest of summary-level information about the University and each of its campus units. The digest forms the official statistical record for all the University's public-information purposes.

Developmental Schedule and Resources

As mentioned elsewhere in the project documents, precise cost guidelines for estimating the time and resource requirements for an information-system-development effort have not been feasible to develop. Instead, the project and

pilot-test-state staff have developed as complete a picture as possible of the time and resource environment within which each agency has been working.

Table 6 describes the developmental history in Hawaii. Table 7 describes the identifiable costs associated with the effort. In using this information as a guide to estimate the schedule and budget for another state, the user must carefully consider that all of public higher education in Hawaii is under a single Board of Regents. As a result of a decision to integrate the information systems of all campuses into one, state-level planning analyses are served by access, at appropriate levels, to the integrated data base. The 1976-77 costs shown in table 7, then, related only to the task of developing the systems and providing the training necessary to use the data base for analytical studies at the campus and system office levels.

Conclusion

The University of Hawaii is a relatively small, well-integrated, comprehensive state system of postsecondary education. Information-system planners recognized early the potential for organizing the operational data files into a single system so that the planning needs of the University can be served by access to the existing transactional data base rather than by creation of a separate data base for system-level management.

The scope and level of detail in the Hawaii MIS go well beyond what should be attempted by any agency not organized similarly to The University of Hawaii. But the planning and implementation of the MENU system of access is exemplary in every regard and serves as a prototype for any agency with a similar commitment to user access and service.

As the 1202 Commission planning effort develops, consideration should be given to organizing state demographic and economic data and data on private and proprietary schools into files compatible with the MIS and retrievable through MENU.

In the meantime, data already available in the system should be adequate to support the planning and budgeting systems now under development by the president's office.

Table 6

Chronological Summary of Major Activities Related to The State-Level Information System in Hawaii

1907	The Board of Regents of the University of Hawaii was established to serve as the constitutional governing board for the University of Hawaii system.
1966	With the advent of HEGIS, the University of Hawaii began providing all required data.
1967	Hawaii began building a mechanized operational system that would serve critical needs such as scheduling, processing enrollments, and the like.
1975	Hawaii became a pilot-test state in the State-Level Information Base project.
	Hawaii began plans for development of an integrated mechanized information system to serve management needs.
1976-77	Hawaii implemented a totally integrated mechanized MIS.
1977	Hawaii began giving individual and group demonstrations to users regarding use of the terminals for retrieving data.
1977-78	Hawaii implemented an on-line information retrieval system for administrators.
1978-79	Hawaii will begin developing a separate mechanized student financial-aid system.

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Table 7

Cost of the State-Level Information System in Hawaii 1976-77

The University of Hawaii

Expenditure Category		1976-77 (a) Total Costs
Personnel		
Systems Analysts/Programmers Includes part-time salaries for four highly sophisticated systems personnel. (Continued maintenance of the completed MIS will require one full-time systems analyst.)	$ 25,000	
Administrative Staff Includes part-time salaries for the Director of Finance, the Director of Management Systems, and institutional research personnel.	10,000	
Advisory Board Includes partial salaries of individuals serving on the State-Level Information Base Advisory Committee.	10,000	
Total		$ 45,000
Equipment		
Disk Storage (recurring rental charges)	67,000	
Terminals Includes one-time purchase costs for fifteen CRTs, six printers and six control units.	66,000	
Total		$133,000
Computer		
Computer Charges and Supplies (recurring charges)		5,000
Software		
Purchases		8,000
GRAND TOTAL		$191,000

5/15/78

NOTE: The University of Hawaii's information system contains data on a very detailed operational and transactional basis from which aggregated information can be produced. Three years of historical information is in the system, and within one year, some of the data are stored for each semester.

(a)These cost figures for 1976-77 represent costs incurred over a period of five to six months for actual system development. Detailed descriptions of simultaneous events that were occurring during 1976-77 are as follows:

1. Review of data requirements -- occurring during one month
   - Reviewing field-review documents of the State-Level Information Base project
   - Reviewing existing data
   - Determining data needs and volume
2. Development of system requirements -- occurring over four months
   - Developing input requirements (file structure, entry for queries)
   - Developing output requirements (screen formats, sorting requirements)
   - Developing of hardware requirements -- occurring over two months
3. Determination of hardware requirements -- occurring over two months
   - Disk requirements
   - Terminals
   - Communications line
   - Order
4. Development of software -- occurring over eight months
   - Obtaining necessary software (CICS)
   - Developing security routines
   - Developing input, output, and processing routines
   - Developing special features (extract, save query)
   - Pilot testing the system
   - Providing user training
   - Handling problems
5. Reevaluation of the system and making adjustments--occurring over three months
6. Distribution of systems to other institutions--occurring over three months

All developmental activities, as opposed to ongoing operational activities and actual system developmental activities, occurred over the period of 18 months beginning in 1975-76 at an estimated cost of $75,000.

(b)Management Systems Office at The University of Hawaii developed a software, MENU, designed primarily as a user-oriented data-retrieval language. Data are organized under the ADABAS data-management structure, which does not lend itself too readily to producing summaries, but is good for working with detailed data.

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IV.

ILLINOIS BOARD OF HIGHER EDUCATION

Background and Functions

The Illinois Board of Higher Education (BHE) was created in 1961 by the General Assembly as a coordinating board for higher education within the state. The Board consists of 16 members. Ten members are appointed by the governor, by and with the advice and consent of the Senate. Five other members of the Board represent the public universities and community colleges. One nonvoting member is a student appointed by a student advisory committee.

The Board is empowered by statute to:

1. Prepare a master plan for the development of higher education (including health-related institutions) in the state, including establishment of mission and scope statements

2. Receive and review institutional budget requests and make budgetary recommendations to the governor and general assembly

3. Receive, review, and approve any new unit of instruction, research, or public service not previously included in the program of the public institutions

4. Periodically review all existing programs of instruction, research, and public service at public institutions and advise the appropriate board of control on the educational and economic viability of the program

5. Establish minimum admission standards for public institutions

6. Establish policies relative to rates of tuition/fees, and consider these when making budgetary recommendations to the governor and General Assembly

7. Design, establish, and supervise the operation of an information system for all state universities and colleges

In addition to the powers granted through legislation, the Board has been directed through legislation to:

1 Recommend budget levels and administer state aid to private institutions (including health-related institutions)

2. Monitor affirmative-action programs at public institutions

Also, the Board prepares recommendations regarding funding levels and the programs of the Illinois State Scholarship Commission. This is not a statutory authority of the Board, but the recommendations of the Board are requested and used by the governor's budget staff and the General Assembly. The Commission programs total $75 to $80 million per year. The Board is also the 1202 Commission for the State of Illinois and provides state-level coordination for HEGIS collection.

The higher-education structure in Illinois consists of 13 public-university campuses, 39 public community-college districts with 51 campuses, and 103 private not-for-profit institutions. A total of 682,195 head-count students and 405,339 FTE students were served by these campuses in 1977. Sixty-four public campuses served 532,798 of the total head-count students. The remaining 149,397 were enrolled in private institutions. Also, some 509 proprietary institutions exist as postsecondary institutions.

The 13 public universities are grouped under four governing boards:

1. Board of Governors

   - Chicago State University
   - Eastern Illinois University
   - Governors State University
   - Northeastern Illinois University
   - Western Illinois University

2. Board of Regents

   - Illinois State University
   - Northern Illinois University
   - Sangamon State University

3. Southern Illinois University

   - Carbondale (includes School of Medicine)
   - Edwardsville (includes School of Dental Medicine)

4. University of Illinois

   - Chicago Circle
   - Medical Center
   - Urbana-Champaign

Most matters that come to the Board's attention are first reviewed and recommended by the governing boards.

With two exceptions, each public community-college district is governed by a locally elected board of trustees. The colleges are financed through local taxes, state and federal support, and tuition. The Illinois Community College Board exists to coordinate the public community-college system. As with the universities, most matters that require Board of Higher Education attention are first reviewed and recommended by the Illinois Community College Board.

The private, not-for-profit institutions are each locally controlled. Most of the private institutions are members of the Federation of Independent Colleges and Universities. When taking action, the Board of Higher Education considers the effect of such actions on the private institutions and receives advice from an advisory committee for nonpublic institutions. The Board staff collects information from private institutions through the Higher Education General Information Survey and other survey instruments.

The proprietary institutions are each independently controlled. They are licensed through various state agencies, such as the Office of Education, the Department of Transportation, the Department of Registration and Education, and the Department of Aeronautics. During its deliberations, the Board receives advice from its Advisory Committee on Proprietary Institutions.

The Board of Higher Education has three main staff divisions. The Academic and Health Affairs Division is responsible for all academic and health-education program review and approval and for special studies related to those areas. The Fiscal Affairs Division is responsible for institutional budget review, related resource analyses, and for coordination of the data systems maintained by the Board. The Governmental Relations Division provides liaison with appropriate federal and state agencies.

Approach to Information Systems

Throughout the academic year, staff of the Board of Higher Education (BHE) conducts its own or coordinates various federal surveys of the Illinois institutions. Information from these surveys has provided the basis for the majority of the Board's current management-information system. A number of these surveys have been computerized to produce the output reports. Others are compiled by hand.

The computerized management-information system is supported by portions of the federal HEGIS and EEOC surveys, by a special planning system for identifying institutional plans and budget requirements known as the Resource Allocation and Management Program (RAMP), and by a series of BHE surveys and regular studies, including unit-cost and faculty-load studies for the public universities and statewide surveys of available space and student financial aid.

The major surveys conducted are as follows:[2]

- Higher Education General Information Survey (HEGIS)*
- Compliance Report of Institutions of Higher Education under Title VI of the Civil Rights Act of 1964 and Title IX of the Education Amendments of 1972-Student Enrollment Survey*
- Higher Education Staff Information (EEO-6) Report on Public/Private Institutions and Campuses*
- Fall Enrollment Survey of Public and Private Colleges and Universities*
- Undergraduate Applications to Public Universities*
- Student Financial Aid Survey of Public and Private Colleges and Universities*
- Resource Allocation and Management Program for Public Universities*
- Resource Allocation and Management Program for Community Colleges*
- Unit Cost Study for Public Universities*
- Full-Time Equivalent Faculty Load Study for Public Universities*
- Statewide Space Survey*
- Survey of Student Costs

The Resource Allocation and Management Program (RAMP) for universities is a key to the functioning of the Board. This program identifies the scope and mission of an institution, its long-range technical plan for achieving that scope and mission, and the operating and capital budget requirements basic to the technical plan.

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2. An asterisk indicates that some computerization has been accomplished.

The Board staff has completed development of an academic-program inventory system and is working on a redefinition of the Statewide Space Survey to accommodate recent national changes in space classification.

While considerable work has been done in support of individual studies, the problem of integrating the data gathered in each study into a logical data base has not yet been solved. Consequently, the current information system does not respond as well as desired to one-time requests that require interrelated data from two or more surveys. One reason for the difficulty is minor definitional inconsistencies among the data elements in the several surveys. Also, the sheer magnitude of defining the relationships among the data elements represents a problem. And in some cases, the data are not sufficiently disaggregated to support sound analytical studies.

So while the current information system is adequate for the study of individual issues, the system does not yet provide the Board staff with the data and tools necessary to completely fulfill either its analytic or information-dissemination roles.

The Board staff began the task of developing an integrated MIS in 1975. The following objectives were established for the effort:

- Provide a consistent and simple reporting framework for Illinois institutions
- Provide the information necessary for the Board to fulfill its statutory and legislated responsibilities
- Provide the data base necessary for responding to special requests for information regarding Illinois higher education
- Provide the data base and computer software necessary for the performance of sound analytic studies on the issues facing Illinois higher education

The Board staff also made clear its intentions regarding the data-collection part of the effort. It is to be a requirement of the completed system that:

- Only the data most pertinent to the BHE set of responsibilities be included
- Data be gathered from existing sources wherever possible
- Institutional data be collected according to a dictionary of standard procedures and data definitions
- Data be reported according to a standard reporting cycle, with the use of preliminary estimates whenever the Board's needs cannot wait for the regular reporting date

The Board expects the completed MIS to produce a series of data displays similar to the following:[3]

Financial

- Comparisons of requested, recommended, budgeted, and actual revenues and expenditures
- Revenues by source**
- Expenditures by function and object classification**
- Program and discipline unit costs**

Academic Programs

- Program inventory**
- Manpower requirements by program
- Public-service activities inventory
- Enrollment by program**
- Degrees conferred by program**

Students

- Enrollment analyses**
- Characteristics**
- Qualifications
- Financial-aid distributions**
- Transfer and follow-up studies**

Faculty

- Characteristics
- Age and tenure distributions**
- Salary distributions**
- Effort reports**

Administration

- Distribution by function**
- Salary distribution**
- Characteristics

Facilities

- Building inventory
- Condition inventory
- Space-use inventory
- Space utilization

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3. Asterisks indicate that data are available from the computerized system.

Institutional

- Tuition and fees
- Classification**
- Characteristics
- Supporting services

Regular staff analysis efforts such as the Unit Cost Study, Faculty Load Study, Statewide Space Survey, Operating and Capital Budget Recommendations, and Student Financial Aid Survey are served by the system.

The Systems Research Group developed the initial conceptual design for the system. The operating design work and programming were done by a different firm on a contract basis. The design is flexible and the staff priority is on developing additional applications of the system to the staff analytical agenda. Development of additional applications will be done in-house.

In the meantime, RAMP is providing most of the regular data collection in support of BHE analytical activities. RAMP is a vehicle for communicating university planning and budget decisions to the Board of Higher Education and is structured to answer four basic questions:

1. What does a university plan to accomplish over the next several years?

2. How does the university plan to accomplish its goals and objectives?

3. What will it cost in terms of resource requirements?

4. How does the university propose to obtain the required resources?

RAMP includes a statement of university goals and objectives (Mission and Scope), a description of how the goals and objectives are to be accomplished over time, including a description of the institution's program-review process and program results (Technical Plan), and an estimate of how much it will cost and from where the resources are projected to come (Resource Requirements Plan). RAMP also provides the framework with which institutions can communicate what they plan to do and how much it will cost.

A major component of the framework is the functional classification system, based on the NCHEMS Program Classification Structure, which cuts across institutional organizational lines but allows universities to reflect their unique activities and characteristics. RAMP enables an analyst to observe how a university distributes its resources among the three primary functions and to indicate how this distribution relates to institutional mission and scope.

Based on information provided in RAMP, the Board staff can better assess higher-education needs and programs on a statewide basis. Through a continuous communications process, the Board of Higher Education can address institutional needs, and institutions can respond to statewide concerns and policies

as expressed by the Board. RAMP was not intended as a statement of a fixed plan to be operative over a four-to-five year period. Rather it is a communication mechanism through which an expression of needs and concerns can flow in both directions.

The Board of Higher Education believes that, in performing its coordinating role, institutional comparisons and analyses must be made on a regular and routine basis. Interinstitutional comparisons are useful in making planning, programming, and budgeting decisions. In RAMP, institutions identify what they plan to accomplish over time. Through the functional classification system, the focus is on the purposes of an institution, as well as what inputs are required to accomplish these purposes.

RAMP serves as an information base for a number of specific Board of Higher Education functions.

1. Data and Information Gathering. The Board of Higher Education currently gathers and compiles data and information for Illinois higher education. These are published for external users in the form of a data book.

2. Planning. The Board of Higher Education is charged with responsibility to do statewide short-term and long-term master planning. Through RAMP, the Board's master-planning activities can be linked directly to institutional and system plans. RAMP is also a mechanism for updating the statewide master plan.

3. Program Review and Approval. Much of the information provided in RAMP assists the Board staff in conducting its program review and approval functions. Enrollment data and degrees produced by degree programs are a part of the basis for review of degree programs.

4. Annual Budgeting. RAMP was established as a mechanism for requesting operating and capital funding support. In RAMP, institutions relate annual budget requests to institutional programs and plans. Under this approach to budgeting, it is possible to view the long-term impacts of a budget decision.

Data Set

During the developmental and testing stage of the State-Level Information Base project, each pilot-test state was asked to indicate the specific data included in its information system. Each state did so, based upon the comparison of its information system as of May 1978 to the 1977 Field Review edition (Technical Report 85) of the State-Level Information Base project. Each state also identified other major types of data that were included in its information system at that time but were not included in the preliminary version of the State-Level Information Base project's proposed data.

The project's final data framework contained in the document entitled Postsecondary-Education Information Systems at the State Level: Selection of Data to Address Planning Issues, is not the same as the preliminary data set. The final framework was designed to be more flexible and adaptable than that contained in Technical Report 85. Also, each state has made minor changes in its data set since May 1978. Still, the earlier comparison tables provide a reasonable current indication of how each pilot-test state's data set compares to the guidance offered by the State-Level Information Base project. Table 8 is the comparison table for the Illinois Board of Higher Education.

Agenda

Planning

The Board's planning responsibilities are central to the statutory authority for its existence. The original statute requires the Board to "prepare a Master Plan for the development, expansion, integration, coordination, and efficient utilization of the facilities, curricula, and standards of higher education for the public institutions of higher education in the areas of teaching, research, and public service."

A 1965 amendment to the statute charges the Board to "conduct a comprehensive study to determine the need and requirements . . . for additional higher education programs in the health professions. . . ." A 1967 amendment to the statute requires the Board to consider private colleges and universities in the formulation of a Master Plan, and "other educational groups, instrumentalities, and institutions, and . . . specialized areas of education, as they relate to the overall policies and problems of higher education." The law also requires the Board to "engage in a continuing study, an analysis and evaluation of the Master Plan so developed" for the purpose of determining any needed modifications or amendments to the plan.

To fulfill these responsibilities, the Board adopted three phases of a Master Plan between 1964 and 1971 and a plan for the development of health professions and education programs. Master Plan Phase I, adopted by the Board in July 1964, contained 48 recommendations and resulted in implementation of a statewide system of public community colleges, established by law in 1965. The major thrust of Master Plan Phase II, adopted by the Board in December 1966, was the establishment of two new public universities to provide upper-level undergraduate instruction and first-year graduate instruction; revision of the governance structure for public universities to include the regency system; and development of a monetary-award program for students based on financial need and the general expansion of the programs of the Illinois State Scholarship Commission.

The Board adopted the report, Education in the Health Fields for State of Illinois, in 1968. This plan was the basis for expansion of education programs in medicine, dentistry, nursing, and other health professions. It resulted in the establishment of several new professional schools and the enactment of the Health Services Education Grants Act, providing financial support for private colleges and universities and clinical facilities for the education of students for the health professions.

TABLE 8

POSTSECONDARY-EDUCATION INFORMATION SYSTEMS AT THE STATE LEVEL
INFORMATION STRUCTURE AND FUNCTIONAL USES OF DATA
Detail by Pilot-Test States
As of May 1978

State: Illinois
Agency: Board of Higher Education (BHE)

INFORMATION STRUCTURE Major Area Data Categories/Data Items	DESCRIPTION OF DATA AVAILABLE (a) Level of Aggregation	Mechanical Status	Institutional Scope	STATE-AGENCY FUNCTIONS AND DATA USES Federal Reporting	Long-Range Planning	Mission/ Role/ Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
State Information	N/A	Aces	N/A											
Population Characteristics of State														
- Census in total, by county, by population density N/A					X							X		
- Distribution of family income														
- Education attainment by county for levels within elementary, secondary, college, and vocational education N/A														
- Elementary/secondary enrollments by public/private by locality N/A					X						X			
- High-school graduates by sex by race by locality														
- High-school-equivalency recipients by sex for state N/A														
Occupancy Outlook of State														
- Employment summary by industry type and by occupational classification for state (especially health areas)					X									
- Job applicants/openings by occupational classification for state														
Finances of State														
- State and local revenues							X							
- State and local appropriations/expenditures							X							
- Student financial aid available from state through state agency, including number of recipients (and their characteristics) and dollar amounts of aid							X					X		
National Information														
Occupation Outlook of Nation														
- Employment summary by industry type and by occupational classification for nation					X	X								
- Job applicants/openings by occupational classification for nation					X	X								
Finances														
- Student financial aid available from federal government directly to students							X					X		

NOTE: N/A indicates not applicable.

(a) Description of Data Available for State Agency's Use:
Level of Aggregation within Agency
ID: Institutional Detail (such as individual student data)
IS: Institutional Summary (totals by institutions only)
SS: State Summary (totals for all institutions or groups of institutions only)

Mechanized Status within Agency:
Mech: Data are, or will be, mechanized
No: No plans to mechanize hard copy
Aces: Data accessible outside agency but not maintained at agency

Institutional Scope:
Data are generally available from the following types of institutions except as noted in the table:

all public institutions, all community colleges, and all private institutions

NOTE: BHE has data at an institutional summary level only. (Community College Board has institutional detailed data.)

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State: Illinois

INFORMATION STRUCTURE	DESCRIPTION OF DATA AVAILABLE			STATE AGENCY FUNCTIONS AND DATA USES										
Major Area / Data Categories/Data Items	Level of Aggregation	Mechanical Status	Institutional Scope	Federal Reporting	Long-Range Planning	Mission/ Role/ Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
Institutional Information	IS													
Institutional Characteristics														
- *HEGIS required data: name, address, FICE code, county, U.S. congressional district, control, structure, accreditation, admissions requirements, undergraduate and graduate tuition/fees, room and board charges, and so forth (on annual NCES form 2300-1, Institutional Characteristics of Colleges and Universities)*		Mech		X										
- Other data: tuition/fees separately for all levels (including lower division, upper division, and specific professional programs), housing, and commuter information N/A														
Student Characteristics														
Demographic			Publics and Community Colleges											
- Applications, admissions, enrollments for first-time students at all levels		Mech			X						X			X
- *HEGIS required head counts by sex, race, FT/PT, and student level, including unclassified (on annual NCES form 2300-2.3, Fall Enrollment in Institutions of Higher Education)*		Mech		X	X		X	X	X				X	X
- Other head counts by age by FT/PT by student level, including unclassified		Mech												X
Geographic Origin														
- *HEGIS required head counts by state (or foreign total) for all students by sex, by program level (bachelor's-degree credit, vocational technical, first professional, graduate, unclassified, and total), and for first-time freshmen and new transfer undergraduates (on NCES form 2300-2.8, Residence and Migration of College Students)*		Mech		X	X						X			X
- Other data on head counts by FT/PT split for first-time entering students at freshman, graduate, and first-professional levels by: ~~in-district by county (for all levels)~~ In-state by county (for first-time freshmen) Out-of-state by state (for first-time freshmen) In-state versus out-of-state totals (for first-time graduates and professionals)		Mech			X						X			X
- Other data on head counts by FT/PT split for new undergraduate transfers by in-state by institution, ~~by out-of-state by state~~		Mech			X		X				X			
Student Ability														
- Head counts of first-time entering undergraduates by high-school rank percentiles, ACT score ranges, ~~and SAT score ranges, including institutional averages~~		No												
Financial Aid														
- Number of recipients (and their characteristics) and dollar amounts of aid available from institution and administered by institution		Mech					X					X		X

NOTE: BHE is state coordinator for HEGIS and EEO reporting for all institutions.

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State: Illinois

INFORMATION STRUCTURE Major Area Data Categories/Data Items	DESCRIPTION OF DATA AVAILABLE Level of Aggregation	Mechanical Status	Institutional Scope	STATE AGENCY FUNCTIONS AND DATA USES Federal Reporting	Long-Range Planning	Mission/Role/Scope	Budgeting	Program Review Current Programs	Program Review New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
Institutional Information (Continued)	IS													
Student Programs and Discipline Information														
Student Programs														
- Inventory of offerings by institution		Mech			X	X		X	X					Separate Publication
- Student Demand														
- *HEGIS required head counts by sex by FT/PT by student level (upper division, first-professional I and II, graduate I and II) for all major fields of study per HEGIS taxonomy (OE form 2300-2.9, Upper Division and Post Baccalaureate Enrollment by Degree Field, last required in 1976 has been discontinued)*		Mech		X	X		X	X	X		X			X
- Other head counts by FT/PT for other students (lower division ~~and nondegree/diploma/certificate), by major field of study (including not designated)~~		Mech			X		X	X	X		X			X
- Costs by student level within student program		Mech	Pub. & C.C.				X	X	X					
- *HEGIS required numbers of degrees/diplomas/certificates conferred by sex and race by type of degree and by major field of study for July 1-June 30 (on annual NCES forms 2300-2.1 and 2.2, Degrees and Other Formal Awards Conferred)*		Mech		X	X		X	X	X					X
- Other information on number of students receiving a certificate/diploma for a program of less than one year by major field of study		Mech	Com. Col.											
- Degrees conferred by age range of students summarized by type of degree N/A														
- Characteristics of program completers summarized by type of degree N/A														
- Noncompleters (and exit status) by type of degree and student program N/A														
Discipline Information														
- Costs by course level within discipline for:														
Degree-related instruction			Publics and Community											
~~Requisite preparatory/remedial~~														
~~Nondegree~~ student		Mech	Colleges (b)				X	X	X					
- Instructional activity: student-credit hours by ~~course~~ level within discipline		Mech					X	X	X					
- Instructional activity: student-contact hours and faculty-contact hours by course level within discipline for:														
Degree-related instruction														
Requisite preparatory/remedial														
Nondegree N/A														

(b) Cost data by discipline for the community colleges are maintained at the four-digit HEGIS level.

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State: Illinois

INFORMATION STRUCTURE Major Area Data Categories/Data Items	DESCRIPTION OF DATA AVAILABLE Level of Aggregation	Mechanical Status	Institutional Scope	STATE-AGENCY FUNCTIONS AND DATA USES Federal Reporting	Long-Range Planning	Mission/ Role/ Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
Institutional Information (Continued)	IS													
Personnel														
- *HEGIS required head counts by sex by FT/PT for manpower categories for all employees. (This information is reported on NCES form 2300-3 only when the form requires information on all employees instead of just full-time instructional faculty, as occurred in 1971-72, 1972-73, and 1976-77.)*		Mech		X	X		X	X	X					X
- *EEOC required data on head counts and salary distribution by sex by race by contract period by manpower categories for all employees. (Form EEO-6 was first required in 1975 as a biennial survey and the same form was used in 1977 and 1979.)*		Mech		X									X	
- *HEGIS required data on full-time instructional faculty by rank by sex by contract period, including numbers tenured and contributing services, and salary and benefit information. (As of 1977, NCES form 2300-3 incorporated information previously collected by A.A.U.P. on salaries for continuing faculty.)*		Mech		X	X		X	X	X				X	X
- Other data on instructional/research staff														
Number tenured, nontenured, and total for full-time by age range		Mech	Publics only											
Number tenured, nontenured, and total for FT/PT by discipline		Mech	Publics only		X		X	X	X					X
Service ~~months by PCE programs~~ year			Pub. & C.C.											
Finances (*HEGIS required data collected annually on form 2300-4, Financial Statistics of Institutions of Higher Education*)														
- *HEGIS required current fund revenues in total (unrestricted/restricted combined) by source for tuition/fees, government appropriations by level, sales and services, other sources, and independent operations*		Mech		X	X		X							X
- Other data on unrestricted current fund revenues by source for government appropriations by level, for other sources, and for independent operations		No	Publics and Privates (c)					X						
- *HEGIS required unrestricted versus restricted current fund revenues by source for government grants and contracts by level; private gifts, grants and contracts; and endowment income*		Mech		X	X		X	X	X					X
- Source/use matrix of current fund revenues		No		X	X		X	X	X					X
- *HEGIS required current fund expenditures and mandatory transfers by function*		Mech		X	X		X	X	X					X
- Balance-sheet information by fund groups N/A														
- *HEGIS required statement of changes in fund balances*		Mech		X	X		X	X	X					X
- *HEGIS required details of endowment*		Mech		X	X		X	X	X					X
- *HEGIS required physical-plant indebtedness in total*		Mech		X	X		X	X	X					X
- Other physical-plant indebtedness for auxiliary enterprises, hospitals, and all other N/A														
- Retirement-fund contributions by a government source for an institution		Mech	Publics											
- *HEGIS required debt outstanding, issued, and retired amounts in total for long-term vs. for short-term*		Mech		X	X		X	X	X					X
- Other debt outstanding, issued, and retired amounts for long-term for auxiliary enterprises, hospitals, and all other		No	Publics and Privates											
- *HEGIS required total interest paid from all funds*		Mech		X	X		X	X	X					X
- Debt-service amounts and purchases of capital assets by source N/A														

(c) BHE receives data about unrestricted current fund revenues for publics and privates that participate in the grants program. Data are used in audits.

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State: Illinois

INFORMATION STRUCTURE	DESCRIPTION OF DATA AVAILABLE			STATE-AGENCY FUNCTIONS AND DATA USES										
Major Area Data Categories/Data Items	Level of Aggregation	Mechanical Status	Institutional Scope	Federal Reporting	Long-Range Planning	Mission/ Role/ Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
Institutional Information (Continued)	IS													
Facilities														
- *HEGIS required assignable square feet by room-use categories and by building condition (Inventory of College and University Physical Facilities, OE form 2300-7, last required this type of facilities information in September 1974. NCES form 2300-7, with the same title, will be used in 1980-81 and will be limited to institutional information about physical facilities for the mobility impaired.)*		Mech		X						X				X
- Station counts for class labs and classroom facilities; weekly student hours for classroom facilities		Mech			X					X				
- Estimated replacement cost by building condition type	▼	Mech			X					X				

NOTE: In addition to the data already identified in this table, the Illinois Board of Higher Education has the following data:

- A comprehensive discipline cost study, which includes faculty activity analysis data, student data, and financial data.
- A detailed faculty-load study (done on an annual basis).
- FTE counts on students (using a state-specified FTE definition).
- Special information on research centers.
- Information on the highest degree earned by full-time faculty.
- A comprehensive Resource Allocation and Management Program (RAMP) with detailed definitions and data-collection procedures. (Most of this information is then mechanized and used in the budgeting process.)

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The stated purposes of Master Plan Phase III, adopted by the Board in May 1971, were to define the mission and scope of public universities regarding development of graduate programs, a "collegiate common market" to promote cooperation among institutions and the development of new methods of delivering educational services, undergraduate and graduate enrollment planning maximums for public universities, cooperative expansion of computer services, expansion of continuing education and community service programs, a moratorium on Ph.D. programs until 1972, limited development of Doctor of Arts degree programs, a task force on teacher education, and the establishment or expansion of specific programs. Phase III also recommended state financial support for private colleges and universities. The Illinois Financial Assistance Act for Nonpublic Institutions of Higher Learning, first funded in fiscal year 1972, provides grants to private institutions on the basis of the enrollment of Illinois residents.

The first three phases of the Illinois Master Plan for postsecondary education were efforts to plan and coordinate significant enrollment growth. Beginning with Master Plan Phase III, however, the Board staff anticipated an enrollment peak in the early 1980s, followed by decreases through 1990 to enrollment levels that would approximate those existing in 1975. The emphasis on cooperative education and nontraditional delivery systems was an attempt to respond to this enrollment bulge. This enrollment trend is still valid through 1990, and recent staff analysis is concentrating more on the expected distribution of students by program category and institutional sector than on growth concerns.

The Board of Higher Education formally announced its intention to develop a revised Master Plan at its November 6, 1973, meeting. In a report adopted in July 1974, the Board of Higher Education indicated that the groups to study the Master Plan topics would include standing advisory committees to the Board, special study groups, system and institutional representatives, the Board staff, and personnel from other local and state agencies. The individual study reports were the foundation for the Master Plan document and serve as reference documents for additional details.

The procedural plan adopted by the Board called for three statewide conferences in September 1974, to allow citizen participation in initial phases of Master Plan study in all areas. A report of the testimony was compiled and presented to the Board in November 1974 and given general public distribution.

The Master Plan for Postsecondary Education in Illinois is primarily a statement of policy recommendations, displaying little statistical data. The format of the planning document is misleading in that regard, however, since the staff analysis involved in developing several of the recommendations was data-intensive. The study of financing for nonpublic higher education is an example. The analysis in support of Board recommendations on tuition is another.

The data available to the staff through RAMP, the cost study, and the faculty-load study provide most of the data needed to support the planning study.

Budgeting

In the Master Plan adopted by the Board of Higher Education in February 1976, a continuous planning and evaluation process was established to sustain past accomplishments, to complete the development of recently established programs, and to respond to changing public needs. The three major components of that process are: (a) the Master Plan itself, which established the general policy and program directions for postsecondary education; (b) a continuing series of special analytical studies to update and augment the Master Plan; and (c) the annual development of institutional program and fiscal plans using the Board's Resource Allocation and Management Program (RAMP) as a planning framework.

Consistent with the Master Plan's commitment to improve quality and increase effectiveness, the Board undertook six special analytical studies during 1976-77. These studies concern education professions, library resources, graduate education, part-time students, research, and special assistance programs. The resulting reports and recommendations were used to augment and update the Master Plan and to guide the Board's budgetary and programmatic recommendations for FY77-78 and 78-79. All sectors of postsecondary education are affected by these studies and are participating in them.

RAMP is the vehicle through which public institutions submit official requests for appropriations to the Board. Each institution's RAMP contains three major elements: a statement of program directions based upon the Master Plan, a technical academic plan that outlines a strategy for achieving specific institutional objectives for both new and existing programs, and a detailed statement of the capital and operating funds requested to meet those objectives for the budget year and projected needs for the succeeding four years. In addition to the three major elements of RAMP, public universities submit documentary information requesting support for new or expanded programs. Special analytical studies are also submitted if appropriations are requested for any unmet needs of ongoing programs. The request for funds for new and expanded programs is submitted in July and includes a detailed summary of existing resources that will be used to support the program, the new resources required, and the benefits to be obtained from the new effort in terms of degrees earned, service provided, or research performed.

The governing board of each community-college district submits its RAMP to the Illinois Community College Board for its use in preparing the budget request submitted to the Illinois Board of Higher Education. Public universities submit RAMP first to their governing board for review and approval and then to the Board of Higher Education. The Illinois Board of Higher Education staff analysis of these RAMP submissions is used as the Board of Higher Education makes its budgetary recommendations to the governor and General Assembly in January.

The approach to planning and budgeting used by the Board tends to highlight the impact various fiscal decisions will have on new or expanded programs, price and salary increases, and adjustments to correct deficiencies, increase productivity, or reallocate resources. There have been periods when new higher-education programs were generously supported, and inflationary cost increases

were fully offset, but in recent budgetary years, unmet needs have become painfully visible. The Master Plan attempts to maintain a realistic and prudent view of the prospects for growth in Illinois higher education and an equal concern for the quality of existing programs and unmet public needs.

The Cost Study for Illinois public universities, in use since fiscal year 1964-65, was an outgrowth of Phase I of the Master Plan. In creating the Master Plan, the Board of Higher Education began to develop consistent procedures for the collection of financial information from the public universities. The Board of Higher Education then authorized the formation of the Budget Formula Committee; that Committee comprised university and Board staff members.

The Budget Formula Committee developed the detailed procedures for the first public-university Cost Study. The Cost Study procedures were tested in a pilot run on fiscal year 1964-65 financial data. Based on the pilot test, a number of minor adjustments to the procedures were made and the first official Cost Study report was completed based on fiscal year 1965-66 financial data. The Cost Study has been completed each year since fiscal year 1965-66 based on the basic procedures developed by the work of the Budget Formula Committee.

The basic objectives of the Cost Study at that time were:

- To evaluate and refine the basis for funding operational costs of higher education
- To provide a basis for improving internal management decisionmaking in planning and evaluating alternatives and their resource requirements
- To provide guidelines for evaluating resource requirements for initiation of new programs

These objectives have remained essentially the same, although variations have evolved since these objectives were first drawn. For example, the Cost Study was initiated for the primary purpose of supporting a budget formula for operations and grants expenditures of public universities. While the Cost Study data are still used in the analysis of budget requests and the development of Operation and Grants budget recommendations, a budget formula is not used. Cost Study information is still used for analysis of resource requirements related to new program requests. Since it was initiated, possibly the most extensive use of Cost Study information has been made by the universities in internal management.

In January 1975, the Board staff organized a Cost Study Technical Committee to review the current Cost Study procedures and to develop new procedures for degree-program costs. The revised Cost Study Manual that resulted from that effort reflects the following major procedural changes:

1. The schedule for submitting Cost Study information was accelerated.

2. The Cost Study was based on estimated expenditure data, rather than audited expenditure data.

3. Included were both on- and off-campus instructional activities and expenditures.

4. The Cost Study structure was revised to conform with the RAMP structure for financial planning and budgeting.

5. The Cost Study was expanded to include degree-program costs using the HEGIS four-digit discipline code structure. Using this, degree-program costs became part of a discipline-code structure. In addition, it was possible to estimate costs of producing instructional courses by degree major.

6. The procedures for the Faculty Load Study were incorporated. A fall-term faculty-workload study has been conducted each year since 1967. Beginning in 1977-78, the procedure was modified to reflect a staff-year concept. The result is more of an annual workload measure than was possible under the earlier methodology.

There were two purposes for the changes. First, the Board staff needed access to more current Cost Study data to make more meaningful analyses of university plans and budget requests. Second, the addition of degree-program costs allowed more effective review of existing programs and new program requests.

While the organizational structures of universities differ, all universities carry on activities that contribute to one, two, or all three of the primary university functions of instruction, organized research, and public service. The purpose of the Cost Study is to assign costs to these three primary functions for each public university.

All state-appropriated funds for university operations and grants (with a few exceptions) are allocated to the three primary university functions. Total costs are compiled by academic discipline and, for instruction, unit costs are developed (costs per credit hour by discipline and student major).

The Cost Study is based on an examination of student and faculty activities as they relate to the three primary functions of instruction, organized research, and public service.

The Faculty Activity Analysis (FAA) is used to collect information on the activities of faculty/administrative employees. Salaries of faculty/administrative employees are assigned to activities performed by each employee in proportion to that employee's assignment to each activity.

After salaries have been assigned, support costs are applied to the three primary functions. Departmental Overheads, School and College Overheads, Campus or University Overheads, and System-Level Overheads are applied, respectively, within each department, school or college, campus or university, and over the entire system when appropriate. In some cases, support costs serve only one of the primary functions. In these cases, the support costs are applied only to the primary functions that they serve. Those support costs that cannot be applied to specific primary function or functions are prorated among all three primary functions.

The discipline unit costs of Instructional Activities are calculated by dividing the costs associated with providing instruction in each of the two-digit HEGIS discipline categories by the number of student-credit hours produced in each discipline, by level of instruction.

Unit costs by program major are calculated by dividing the costs associated with producing all the courses taken by students in each degree program by the number of credit hours produced in each degree program.

Functional Classification System

The Cost Study incorporates the functional classification system of the Resource Allocation and Management Program (RAMP) budget and planning system. Figure 8 provides a brief outline of the Cost Study and identifies the major components used.

Faculty Load Study

Each fall term a Faculty Load Study is produced from the data collected through the FAA and cost-study procedures for that term. The Faculty Load Study, which parallels the unit cost study at the departmental level, displays the number of student-credit hours generated per faculty staff year and accumulates the FTE assignments by the component parts of the instructional effort (direct instruction, indirect instruction, department research, departmental administration). In the Faculty Load Study, only the instructional and administrative assignments within an academic department or unit are included. The portions of departmental faculty and administrative assignments not part of the instructional function within an academic department are captured as a separate total for the department.

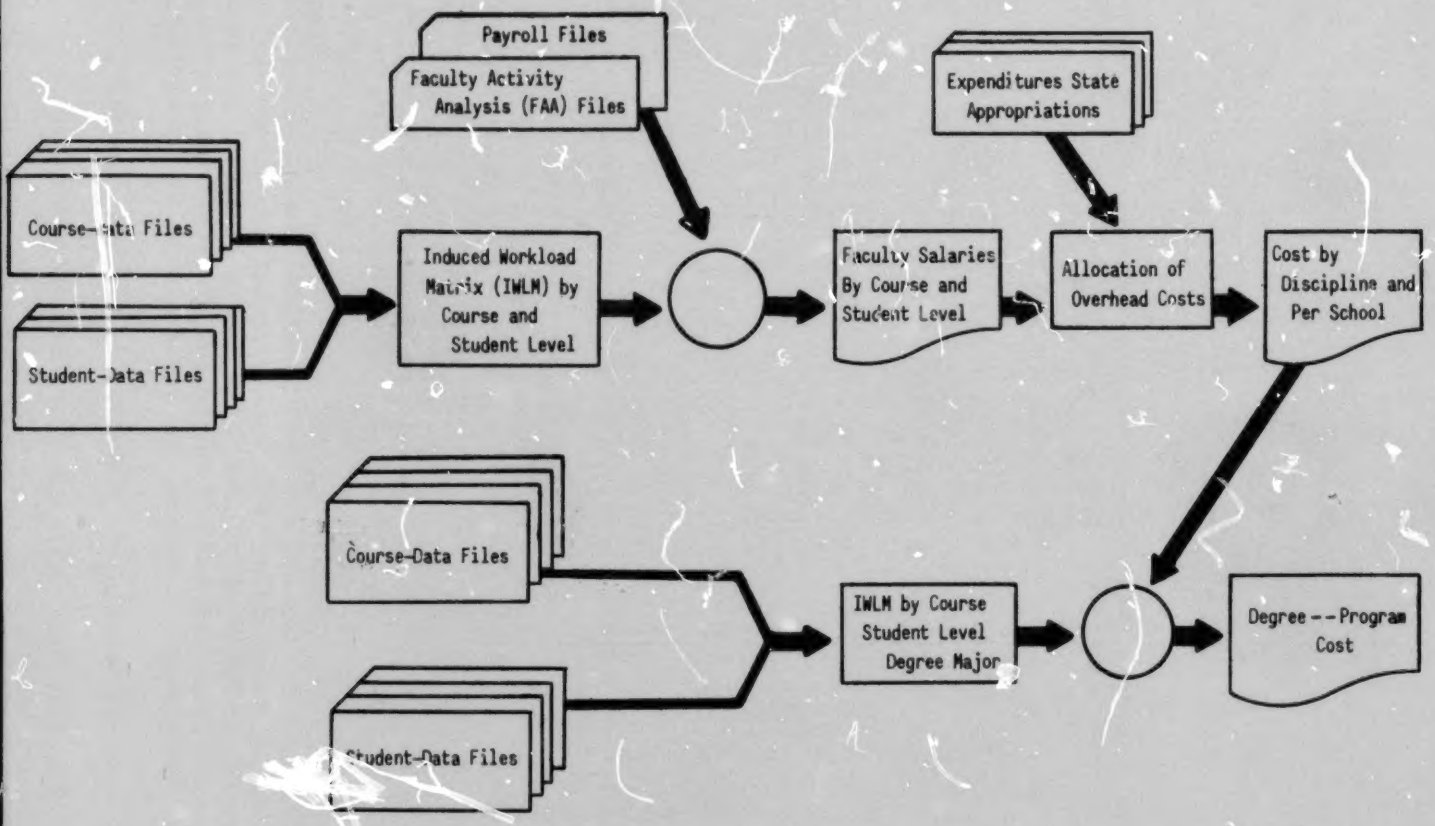
Credit hours generated per FTE faculty member are accumulated by class level and two-digit HEGIS discipline. Two levels of detail are shown (credit hours per direct instructional FTE is the sum of direct instruction, indirect instruction, departmental research, and departmental administration).

FTE faculty assignments are distributed using the following procedure:

1. FTE faculty assignments are first distributed to the primary functions

Figure 8

Outline of the Illinois Board of Higher Education Cost Study


Payroll Files
Faculty Activity Analysis (FAA) Files
Expenditures State Appropriations
Course-Data Files
Student-Data Files
Induced Workload Matrix (IWLM) by Course and Student Level
Faculty Salaries By Course and Student Level
Allocation of Overhead Costs
Cost by Discipline and Per School
Course-Data Files
Student-Data Files
IWLM by Course Student Level Degree Major
Degree--Program Cost

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2. FTE faculty having instructional assignments are distributed to the component parts of direct instruction, indirect instruction, and departmental research based on the assignments in the faculty-activity analysis

3. The portion of FTE faculty for direct instruction is distributed to courses based on the credit value of the courses

4. FTE faculty for each course is distributed to student level based on the level of student enrollment in each course

5. The portion of FTE faculty for indirect instruction and departmental research is distributed to student level based on the closest possible distribution of FTE for direct instruction

6. FTE faculty having departmental administration assignments are distributed to the primary functions in proportion to the total departmental faculty assignments to those functions

7. The portion of the departmental administration FTE assigned to the instructional function is distributed to student level, based on the distribution of total faculty FTE to level within the department

Student-credit hours and FTE assignments by student level are accumulated within the appropriate HEGIS discipline. Student-credit hours by level are divided by the total direct instructional FTE and total departmental FTE for a given HEGIS discipline to yield the student-credit hours per FTE for that discipline.

Data provided by RAMP, the Cost Study, and the Faculty Load Study provide the basis for the Board of Higher Education budget-review function, recognizing aspects of the program structure and study designs that are unique to Illinois.

Program Review

Review of Existing Programs. The Board of Higher Education has a responsibility to ". . . review periodically all existing programs of instruction, research and public service at the state universities. . . ." The purpose of program review from a state-level perspective is to answer the following key questions:

- Which current programs and services need to be improved and how can improvement be accomplished?

- Which current programs and services are no longer required at current levels, and how will they be phased down or eliminated?

- Which programs are required that are not being provided currently?

The questions are equally applicable to both primary and support programs of the university. All have a direct link to BHE responsibilities for new program approvals and annual budget recommendations regarding funding of new or expanded program requests.

Institutions also address the three questions cited above and carry out reviews to support numerous internal planning, resource allocation, and program-improvement decisions, and to respond to accreditation requirements. Primary responsibility for initiation of reviews, for carrying out the review process, and for the development of recommendations as a result of reviews lies with the institution. The central role of the institution is based on the concept that self-study, peer review and evaluation, and consequent recommendations must address institutional needs. The ongoing process of program review carried out by the institution should provide the information necessary to support the BHE responsibilities relative to program review.

Review of Academic Programs. RAMP asks each institution to describe the process used to periodically review existing instruction, research, and public service programs, the schedule for conducting reviews in future years, and the results of selected reviews conducted during the past year.

As the need arises, BHE identifies programs that should be reviewed by all institutions in a given year to provide a total statewide planning perspective. BHE identifies these programs on the basis of statewide conditions and trends, such as job-market demands in a particular programmatic area, statewide problems that can be addressed through new or expanded educational programs or enrollment shifts, and cost study results that indicate a need to analyze a particular program or group of programs on a statewide basis. Such programs are identified in advance.

Institutional and governing-board needs dictate the remainder of the review schedule. Accreditation schedules and indicators, such as enrollment shifts, new staffing requirements, and the desire to explore modifications in program direction, generate institutional reviews. Institutions schedule program reviews so results can support major changes to existing program directions spelled out in RAMP. Institutions are advised to schedule all programs that are the responsibility of a given academic unit for review in the same year, to minimize workloads and data-analysis problems.

In general, all program majors by level should be reviewed every five years; however, institutions may identify exceptions in cases where long-term stability, for example, justifies a review cycle of greater than five years.

Follow-up plans and actions that result from program reviews conducted during the past year are developed against a backdrop of important historical descriptions and future projections. A list of follow-up plans and actions to be taken as a result of all program reviews conducted during the past year is requested. The plans and actions are then linked (by reference) to any major programmatic changes described in the RAMP Planning Statements that are responsive to the results of the program review. Historical and projected resource requirements are submitted for each program reviewed during the past year.

BHE staff requests no additional information beyond that outlined in the two paragraphs above, except for programs identified in advance for review in greater depth at the state level.

A typical request for information to support an in-depth, state-level review of an identified program includes:

- Student/clientele demand for the program
- Manpower demands addressed by the program
- Resources required by the program
- Assessments of how the program meets the needs of its students/clientele
- The contribution and potential of the program relative to new knowledge, application of knowledge, and service
- The strength and long-term potential of the program

Review of Nonacademic Programs. Due to the unique characteristics of most support programs at each university campus, there is no prescribed design for conducting the nonacademic reviews. In many instances, a nonacademic or support-area review will be conducted on a statewide basis, and the Board of Higher Education staff will work with institutional and governing-board representatives to design the study procedures, information formats, and schedules.

Review of New Programs. The Board of Higher Education has the responsibility to approve all new units of instruction, research, and public service, including the establishment of a college, school, department, division, or institute. In addition, a public university proposing to offer a degree-program major at an off-campus location must seek Board of Higher Education approval in accordance with BHE definitions and criteria. All proposed new programs must have received the approval of the institution's governing board. BHE requires the following information for each new program:[4]

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4. An asterisk indicates that the information is not applicable for off-campus programs.

I. Program identification

A. Date submitted
B. Title
C. HEGIS classification code
D. Location of the program

II. Program content and objectives

A. Statement of the objectives
B. Full catalog description

1. Program majors and specializations or options
2. Course requirements for the degree (include credit hours per course) and core curriculum for each major or specialization; all new courses and activities should be identified
3. Any special degree requirements

III. Description of clientele to be served by the program

A. Projected program size in terms of enrollments, credit hours to be offered, and degrees granted
B. Significant aspects of the clientele served (full-time, part-time, in-service); significant deviations from the clientele mix of the overall campus, and characteristics such as special academic or vocational experience
C. Estimated proportions of students completing the program who will continue to higher levels of education or seek employment by relevant job categories
D. Market demand for career categories to be served

IV. Relationship to existing programs

A. Impact of the program on other programs within the institution
B. Similar programs that exist in Illinois
C. Cooperative arrangements that have been explored (clinical affiliations, internship opportunities, resource sharing, joint sponsorship)

V. Program evaluation

*A. Plans for accreditation, if required
*B. Recommendations for internal program review and the results of accreditation reviews for other programs in the same academic unit

*C. Performance and effectiveness measures to be used in the review and evaluation of this program

VI. Resource requirements

*A. Principal faculty to be used in the program
B. For off-campus program only, residential versus nonresidential faculty; regular assignment versus overload; full-time versus part-time
C. New facilities, equipment, library resources, support services, and so forth, necessary to initiate and sustain the program

Student Financial Aid

The Illinois State Scholarship Commission serves as the state student-assistance agency. Illinois participates in the federal/state student-incentive grant program and has a state guaranteed-loan program under the federally insured loan program. The staff of BHE has been projecting student-financial-aid requirements using a manually calculated planning model. As financial-aid considerations become more important among the resource analysis activities of the staff, the more deliberate collection of student-financial-aid data and the development of a more sophisticated model will probably be necessary.

Developmental Schedule and Resources

As mentioned elsewhere in the project documents, precise cost guidelines for estimating the time and resource requirements for an information-system-development effort have not been feasible to develop. Instead, the project and pilot-test-state staff have developed as complete a picture as possible of the time and resource environment within which each agency has been working.

Table 9 describes the developmental history in Illinois; table 10 describes the identifiable costs associated with the effort. In using this information as a guide to estimate the schedule and budget for another state, the user must carefully consider the extensive use of data in the analytical approaches taken by the Board of Higher Education staff. Users also should remember that the emphasis during the pilot test in Illinois was on organizing existing data-collection efforts into an integrated, computerized management-information system. The costs incurred by institutions and system level offices are not included.

Conclusion

The Board of Higher Education staff has developed an approach close to the concept of "management by exception" in carrying out its statutory responsibilities. Key to the approach is RAMP, which collects information on certain activities (mission and scope, existing program reviews, and new program requests every year) while providing an annual vehicle for the Board of Higher Education to request more detailed review in academic and nonacademic areas that appear to need state-level attention.

Table 9

Chronological Summary of Major Activities Related to the State-Level Information System in Illinois

1961	Illinois Board of Higher Education (BHE) was established by statute.
1964	BHE began an institutional unit-cost study.
	In July, the Board adopted Phase I of the Master Plan, containing 48 recommendations.
1965	A statewide system of public community colleges was established by law.
	Amendment to the original statute established BHE and instructed the Board to conduct a comprehensive study to determine the need and requirements for additional higher-education programs in the health professions.
1966	With the advent of HEGIS, BHE became state coordinator for all instructional reporting.
	In December, the Board adopted Phase II of the Master Plan.
1967	Amendment to the original statute that established BHE now requires the Board to consider private colleges and universities in the formulation of a Master Plan, and other educational groups, instrumentalities, and institutions and specialized areas of education as they relate to the overall policies and problems of higher education.
1968	BHE began institutional faculty-workload study.
1971	In May, the Board adopted Phase III of the Master Plan.
1973	BHE began discussing development of a revised Master Plan.
	First Resource Allocation and Management Program (RAMP) document was developed and distributed to institutions for preparation of FY 1974-75 budget.
1974	BHE approved a list of topics to be studied in Master Plan revision process and adopted a procedural plan.
	BHE acquired a hard-copy terminal for storing and analyzing special financial data on Illinois institutions in conjunction with the national model for financing postsecondary education.
1975	Illinois became a pilot-test state in the State-Level Information Base project.
	In October 1975, BHE began developing the conceptual design of an MIS.
1976	BHE began developing and implementing its MIS. Historical data files were converted.
1977	BHE began institutional program-cost study.
1978	Card reader/printer acquired and also an RJE terminal for batch processing.

Table 10

Cost of the State-Level Information System in Illinois 1975–76 through 1978–79

Illinois Board of Higher Education (BHE)

Fiscal Year	Activity	Total Costs	
1975–76	In October 1975, BHE began to develop the conceptual design of an MIS. Routine costs related to data processing continued at normal level.		
	Development Costs (a)	$ 0	
	Personnel (includes 1 programmer and 1 data entry clerk) (b)	51,000	
	Computer Services (c)	14,000	
	Other (d)	6,500	
	Total		$ 71,500
1976–77	Development of the new MIS began. Historical files were converted.		
	Development Costs	$110,000	
	Personnel (includes 1 data-base administrator, 2 programmers, and 1 data entry clerk)	77,000	
	Computer Services	20,000	
	Other	32,400	
	Total		$239,400
1977–78	Development and Installation of the MIS continued. First data collection under the new MIS began (including submission of machine readable data by institutions when available).		
	Development Costs	$ 90,000	
	Personnel (includes 1 data-base administrator, 2 programmers, and 2 data entry clerks)	85,000	
	Computer Services	26,400	
	Other	32,400	
	Total		$233,800
1978–79	Development stage of the MIS has ended, and regular maintenance and projection begins.		
	Development Costs	$ 0	
	Personnel (includes 1 data-base administrator, 2 programmers, and 2 data entry clerks)	85,000	
	Computer Services	26,400	
	Other	32,400	
	Total		$143,800

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(a)Developmental costs include contracts with external consultants and other internal activities such as file and program conversions, revised data-collection manuals and procedures.

(b)Personnel costs include salaries and benefits for staff indicated.

(c)Computer Services include direct costs for use of computer facilities (including disc-storage) at the State of Illinois Management Information Division, which has six large computers (four 370/168s and two 370/158s and 29 megabites of storage. (BHE accesses the computer facilities via an RJE terminal by using EASYTRIEVE and COBOL. RAMP data are organized under an IMS structure.)

(d)Other includes BHE costs for its CRT, RJE terminal, supplies, telecommunications, training, and travel.

The Cost Study and Faculty Load Study provide objective data to support the Board of Higher Education staff analysis of costs and productivity of public institutions and to provide the basis for development of the Board of Higher Education's budget recommendations to the governor and the Legislature.

RAMP provides a predictable, annual planning and program-budget-related routine for satisfying the information requirements necessary to satisfy the extensive analytical agenda of the BHE staff. Similarly, the Cost and Faculty Load Studies satisfy state-level needs without significant changes from year to year.

The completion of the planned MIS will link all three sources of data together with selected external data and will provide each BHE staff member with access to what now appear to be scattered data sources.

The data in the Cost Study and the Faculty Load Study are consistent with the project's data framework with some minor exceptions. Part of the plan for finalizing the MIS calls for a review of all other data requirements for consistency with the project's data reference document.

V.

KENTUCKY COUNCIL ON HIGHER EDUCATION

Background and Functions

Kentucky's Council on Higher Education (CHE) was established in 1934. Between 1934 and 1972, it served mainly to coordinate teacher-education curricula among the teachers colleges and as a forum for institutional presidents to discuss issues in higher education. In 1963, the Council began collecting enrollments and degrees-conferred information for publication, later becoming the HEGIS coordinator in Kentucky.

The 1972 amendments established the Council's coordinative authority over all of public higher education in these major areas:

- Developing comprehensive plans to meet Kentucky's needs for public higher education
- Considering statewide budget requirements and reviewing institutional budget requests
- Approving all new degree or certificate programs
- Establishing tuition and fee levels and policies
- Approving all capital construction projects whose costs exceed $100,000

A 1977 Executive Order, later confirmed by 1978 legislative amendments to the Council's statute, broadened the planning responsibilities and membership

of the Council to include all of postsecondary education in Kentucky and designated it to be the central source of postsecondary information in Kentucky.

Kentucky state government is characterized by a strong executive function. Though the Council is not a cabinet-level agency, it is viewed by the governor as the executive agency in higher education, and much of the Council's work (particularly its responsibilities for planning and budgeting) serves to develop recommendations to support the governor's policymaking responsibilities.

The Council serves as the 1202 Commission in Kentucky. The only state-level responsibilities for postsecondary education that are not assigned to the Council are vocational education and student financial assistance. The State Board of Education serves as the student-assistance agency, providing coordination of federal financial-aids programs, as required.

Kentucky public colleges and universities are governed by eight separate institutional boards. The Board of Trustees of the University of Kentucky governs the University and the 13-campus system of public community colleges. Each of the other seven boards governs a single institution. The Council of Independent Colleges and Universities, one of the more active state-level associations of independent institutions, provides state-level services and representation for 20 colleges and universities.

The staff of CHE is organized into two main divisions: Administration and Academic Affairs. Each division is staffed with about 25 professionals (see figure 9 for an organization chart). The Administration Division is responsible for all financial analysis and for developing the management-information system. The Kentucky Center for Educational Statistics, the central source of postsecondary-education information called for by the 1977 Executive Order, is one of the subunits of the Administration Division.

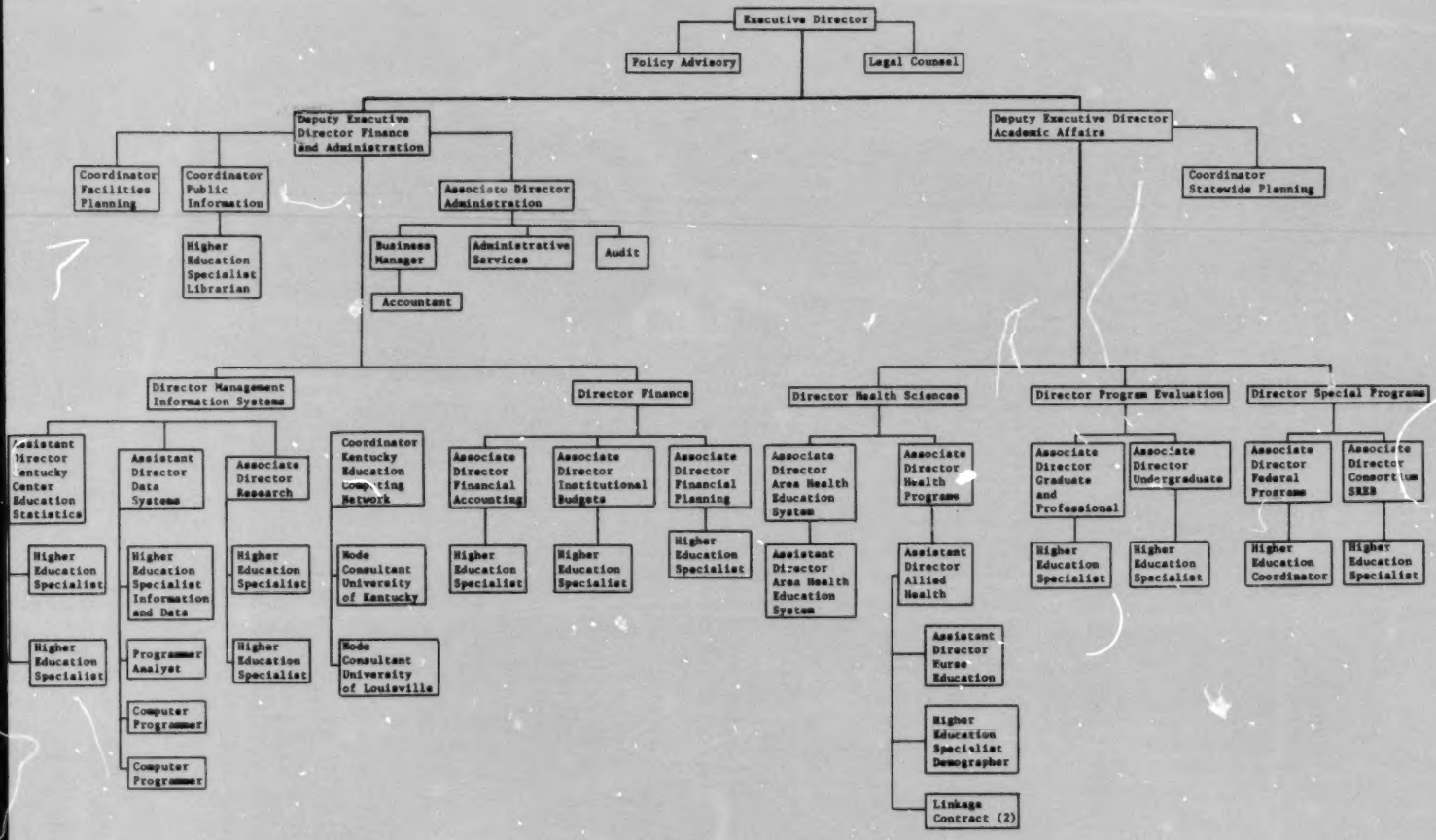
Approach to Information Systems

In Kentucky, defining the functions of the coordinating agency preceded the development of an information system to support those functions. The legislature in 1972 clearly acted to create a strong coordinating body and was just as clear in spelling out the Council's duties. The action (in 1972) was recent enough to occur in an environment more willing to accept state-level coordination than would have been true even 10 years earlier. The need for information to support the Council's responsibilities was well recognized in the 1972 deliberations, giving momentum to the Council's MIS development efforts.

Initial data-collection efforts occurred as a part of staff implementation of each of the Council's several mandates. In 1973, a staff position for coordination of information and data systems was established to give Councilwide emphasis and consistency to the effort. Kentucky became interested in participating as a pilot-test state because of the opportunity to assess data needs based upon agency activities and to organize needed data into a single, integrated, accessible data base. The 1977 Executive Order provided further

Figure 9

Organizational Chart of the Kentucky Council on Higher Education
As of Fall 1977



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momentum to the effort, making the collection and maintenance of postsecondary-education information a state-level function of the Council in its own right.

The responsibility for carrying out the information mandate of the 1977 order rests with the Kentucky Center for Educational Statistics (KCES), a unit within the Council's Division of Administration. The KCES coordinates all data-collection efforts for the Council, including HEGIS data and all special surveys, and handles all external requests for information. Developing data systems necessary to provide staff access to the MIS and to support staff analytical needs is the responsibility of a separate staff unit. Both the KCES and the data systems staff unit report to the director of Management Information Systems.

The KCES is responsible for identifying the data elements and definitions for the data set, designing collection forms, maintaining the collection schedule, and performing all edit and audit activities. Plans are to back up the regular edit procedure with on-site audits, particularly of enrollment data. Initial site visits are already underway.

A Task Force on Information and Data Systems provides insitutional advice to the Office of Management Information Systems, including review of all proposed data-element additions or deletions and definitional changes. Each public institution is represented on the Task Force, with the representative from the University of Kentucky also speaking for community-college concerns. A representative of the Council of Independent Kentucky Colleges and Universities represents private higher-education concerns.

A separate advisory group is concerned only with involvement and review of the State-Level Information Base project, and their suggestions and recommendations are presented to the Task Force on Information and Data Systems for technical evaluation. Essentially the Task Force is more concerned with the technical aspects of the data systems.

The three major sources of data for the MIS are the HEGIS surveys, Council surveys, and program and discipline cost data collected through an annual IEP-based cost study completed by Kentucky private and public colleges and universities. Beginning with 1975-76 data, HEGIS data are being computerized only as necessary, due to other priorities on the time of the data systems staff.

Figure 10 lists the Council surveys. The data will be organized into hierarchically organized segments. IMS is the data-base management system installed on an IBM 370/168. MARK IV is used extensively to process ad hoc requests and preplanned batch reports and for loading edited data into the data base. COBOL is used to edit the data and to produce reports in cases where MARK IV is not feasible.

The entire project data set is incorporated in the CHE/KCES data-base design. Not all data in the design are being collected or incorporated into the data base initially. While most of the surveys are automated, many are stored as individual files for the time being. As uses require the data

Figure 10

Surveys Conducted by
The Kentucky Council on Higher Education
As of Fall 1977

Survey Identifier	Survey Name
KCHE-A	Head-count Enrollment
KCHE-B1 and B2	Credit Hours by Student Level (On and Off-Campus)
KCHE-C1 and C2	Credit Hours by HEGIS Discipline and Course Level (On and Off-Campus)
KCHE-D	Head Count by Degree Field and Student Level
KCHE-E	Students Enrolled for Professional Degrees--Head Count
KCHE-F	Black-Student Enrollment
KCHE-G	Origin of Enrollment by Kentucky Counties
KCHE-H	Origin of Enrollment by State, Territory, and Foreign Country
KCHE-I	Head Count of Transfer Students by Sending Institution and Student Level
KCHE-J	Enrollment of First-Professional Students by Kentucky Counties
KCHE-K	Enrollment of First-Professional Students by State, Territory, and Foreign Country
KCHE-L	Head Count of Students Receiving Out-of-State Tuition Waiver by State and County

recommended but not yet collected by the CHE, the proposed data element will be reviewed for compatibility and made compatible when appropriate. The data element then will be reviewed by the Task Force on Information and Data Systems and turned over to KCES for forms design and collection.

Data Set

During the developmental and testing stage of the State-Level Information Base project, each pilot-test state was asked to indicate the specific data included in its information system. Each state did so, based upon the comparison of its information system as of May 1978 to the 1977 Field Review edition (Technical Report 85) of the State-Level Information Base project. Each state also identified other major types of data that were included in its information system at that time but were not included in the preliminary version of the State-Level Information Base project's proposed data.

The project's final data framework, contained in the document entitled Postsecondary-Education Information Systems at the State Level: Selection of Data to Address Planning Issues, is not the same as the preliminary data set. The final framework was designed to be more flexible and adaptable than that contained in the Technical Report 85. Also, each state has made minor changes in its data set since May 1978. Still, the earlier comparison tables provide a reasonable current indication of how each pilot-test state's data set compares to the guidance offered by the State-Level Information Base project. Table 11 is the comparison table for the Kentucky Council on Higher Education.

Agenda

Planning

Among the mandates of the Kentucky Revised Statutes that define the mission and functions of the Council are two that particularly emphasize statewide planning: The first provides that the Council shall "engage in analyses and research to determine the overall needs of higher education in the Commonwealth." The second states that the agency shall "develop and transmit to the Governor comprehensive plans for public higher education which meet the needs of the Commonwealth."

Because Kentucky has two types of problems facing higher education--those to which immediate attention can and should be given and those that require a longer-range determination or solution--the planning activities of the Council were divided into two phases. Beginning in early 1974, the Council began the initial phase of its comprehensive planning effort: identifying issues facing Kentucky's higher education--both public and private--that require immediate attention and developing recommendations and proposals for their solution. The issues identified and the recommendations and proposals to meet them provided a foundation for the second phase of the planning effort: developing a comprehensive plan to meet the immediate (2 to 3 years) and long-range (8 to 10 years) needs facing the institutions and the Commonwealth of Kentucky. Over 600 individuals participated in the initial phase of the comprehensive

TABLE 11

POSTSECONDARY-EDUCATION INFORMATION SYSTEMS AT THE STATE LEVEL
INFORMATION STRUCTURE AND FUNCTIONAL USES OF DATA
Detail by Pilot-Test States

As of May 1978

State: Kentucky
Agency: Council on Higher Education (CHE)

INFORMATION STRUCTURE		DESCRIPTION OF DATA AVAILABLE (a)			STATE-AGENCY FUNCTIONS AND DATA USES										
Major Area / Data Categories/Data Items		Level of Aggregation	Mechanical Status	Institutional Scope	Federal Reporting	Long-Range Planning	Mission/Role/Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
State Information													N/A		
Population Characteristics of State															
- Census in total, by county, by population density		N/A	Mech	N/A								X			
- Distribution of family income		N/A	Mech	N/A								X			
- Education attainment by county for levels within elementary, secondary, college, and vocational education	N/A														
- Elementary/secondary enrollments by public/private by locality		N/A	Aces	N/A								X			
- High-school graduates by sex by race by locality	N/A														
- High-school-equivalency recipients by sex for state	N/A														
Occupancy Outlook of State															
- Employment summary by industry type and by occupational classification for state	N/A														
- Job applicants/openings by occupational classification for state	N/A														
Finances of State															
- State and local revenues	N/A														
- State and local appropriations/expenditures	N/A														
- Student financial aid available from state through state agency, including number of recipients (and their characteristics) and dollar amounts of aid	N/A														
National Information															
Occupation Outlook of Nation															
- Employment summary by industry type and by occupational classification for nation	N/A														
- Job applicants/openings by occupational classification for nation	N/A														
Finances															
- Student financial aid available from federal government directly to students	N/A														

NOTE: N/A indicates not applicable.

(a) Description of Data Available for State Agency's Use:
Level of Aggregation within Agency
ID: Institutional Detail (such as individual student data)
IS: Institutional Summary (totals by institutions only)
SS: State Summary (totals for all institutions or groups of institutions only)

Mechanized Status within Agency:
Mech: Data are, or will be, mechanized
No: No plans to mechanize hard copy
Aces: Data accessible outside agency but not maintained at agency

Institutional Scope:
Data are generally available from the following types of institutions except as noted in the table:

all public and private institutions

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State: Kentucky

INFORMATION STRUCTURE		DESCRIPTION OF DATA AVAILABLE			STATE-AGENCY FUNCTIONS AND DATA USES										
Major Area / Data Categories/Data Items		Level of Aggregation	Mechanical Status	Institutional Scope	Federal Reporting	Long-Range Planning	Mission/ Role/ Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
Institutional Information															
Institutional Characteristics - *HEGIS required data: name, address, FICE code, county, U.S. congressional district, control, structure, accreditation, admissions requirements, undergraduate and graduate tuition/fees, room and board charges, and so forth (on annual NCES form 2300-1, Institutional Characteristics of Colleges and Universities)*		IS	No	Publics and Privates	X								N/A		X
- Other data: tuition/fees separately for all levels (including lower division, upper division, and specific professional programs), housing, and commuter information	N/A														
Student Characteristics															
Demographic - Applications, admissions, enrollments for first-time students at all levels	N/A														
- *HEGIS required head counts by sex, race, FT/PT, and student level, including unclassified (on annual NCES form 2300-2.3, Fall Enrollment in Institutions of Higher Education)*		IS	Mach		X							X		X	X
- Other head counts by age by FT/PT by student level, including unclassified	N/A														
Geographic Origin - *HEGIS required head counts by state (or foreign total) for all students by sex, by program level (bachelor's-degree credit, vocational technical, first professional, graduate, unclassified, and total), and for first-time freshmen and new transfer undergraduates (on NCES form 2300-2.8, Residence and Migration of College Students)*		IS	No		X										
- Other data on head counts by FT/PT split for first-time entering students at freshman, graduate, and first-professional levels: In-district by county (for all levels) In-state by county (for first-time freshmen) Out-of-state by state (for first-time freshmen) In-state versus out-of-state totals (for first-time graduates and professionals)		IS	Mach			X						X			X
- Other data on head counts by FT/PT split for new undergraduate transfers by in-state by institution, by out-of-state by state	N/A														
Student Ability - Head counts of first-time entering undergraduates by high-school rank percentiles, ACT score ranges, and SAT score ranges, including institutional averages	N/A														
Financial Aid - Number of recipients (and their characteristics) and dollar amounts of aid available from institution and administered by institution	N/A														

NOTE: CHE is state coordinator for HEGIS reporting for public and private institutions.

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State: Kentucky

INFORMATION STRUCTURE Major Area Data Categories/Data Items	DESCRIPTION OF DATA AVAILABLE Level of Aggregation	Mechanical Status	Institutional Scope	STATE-AGENCY FUNCTIONS AND DATA USES Federal Reporting	Long-Range Planning	Mission/Role/Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
Institutional Information (Continued)			Public and Privates									N/A		
Student Programs and Discipline Information	IS	Mech				X		X	X					
Student Programs														
- Inventory of offerings by institution														
- Student Demand														
- *HEGIS required head counts by sex by FT/PT by student level (upper division, first-professional I and II, graduate I and II) for all major fields of study per HEGIS taxonomy (OE form 2300-2.9, Upper Division and Post Baccalaureate Enrollment by Degree Field, last required in 1976 has been discontinued)*	IS	Mech		X							X			X
- Other head counts by FT/PT for other students (lower division and nondegree/diploma/certificate), by major field of study (including not designated)	IS	Mech						X	X		X			
- Costs by student level within student program	IS	Mech					X							
- *HEGIS required numbers of degrees/diplomas/certificates conferred by sex and race by type of degree and by major field of study for July 1-June 30 (on annual NCES forms 2300-2.1 and 2.2, Degrees and Other Formal Awards Conferred)*	IS	Mech		X									X	X
- Other information on number of students receiving a certificate/diploma for a program of less than one year by major field of study	N/A													
- Degrees conferred by age range of students summarized by type of degree	N/A													
- Characteristics of program completers summarized by type of degree	N/A													
- Noncompleters (and exit status) by type of degree and student program	N/A													
Discipline Information														
- Costs by course level within discipline for:														
Degree-related instruction Requisite preparatory/remedial	IS	Mech					X							
Nondegree	IS	Mech					X	X	X					
- Instructional activity: student-credit hours by course level within discipline														
- Instructional activity: student-contact hours and faculty-contact hours by course level within discipline for:	N/A													
Degree-related instruction Requisite preparatory/remedial Nondegree														

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State: Kentucky

INFORMATION STRUCTURE Major Area Data Categories/Data Items	DESCRIPTION OF DATA AVAILABLE Level of Aggregation	Mechanical Status	Institutional Scope	STATE-AGENCY FUNCTIONS AND DATA USES Federal Reporting	Long-Range Planning	Mission/Role/Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
Institutional Information (Continued)														
Personnel			Publics and Privates									N/A		
- *HEGIS required head counts by sex by FT/PT for manpower categories for all employees. (This information is reported on NCES form 2300-3 only when the form requires information on all employees instead of just full-time instructional faculty, as occurred in 1971-72, 1972-73, and 1976-77.)*	IS	No		X										
- *EEOC required data on head counts and salary distribution by sex by race by contract period by manpower categories for all employees. (Form EEO-6 was first required in 1975 as a biennial survey, and the same form was used in 1977 and 1979.)*	IS	No		X										
- *HEGIS required data on full-time instructional faculty by rank by sex by contract period, including numbers tenured and contributing services; and salary and benefit information. (As of 1977, NCES form 2300-3 incorporated information previously collected by AAUP on salaries for continuing faculty.)*	IS	No		X										
- Other data on instructional/research staff. Number tenured, nontenured, and total for full-time by age range Number tenured, nontenured, and total for FT/PT by discipline Service months by PCS programs N/A														
Finances (*HEGIS required data collected annually on form 2300-4, Financial Statistics of Institutions of Higher Education*)														
- *HEGIS required current fund revenues in total (unrestricted/restricted combined) by source for tuition/fees, government appropriations by level, sales and services, other sources, and independent operations*	IS	Mach		X			X							X
- Other data on unrestricted current fund revenues by source for government appropriations by level, for other sources, and for independent operations N/A														
- *HEGIS required unrestricted versus restricted current fund revenues by source for government grants and contracts by level; private gifts, grants and contracts; and endowment income*	IS	Mach		X			X							X
- Source/use matrix of current fund revenues N/A														
- *HEGIS required current fund expenditures and mandatory transfers by function*	IS	Mach		X			X							
- Balance-sheet information by fund groups N/A														
- *HEGIS required statement of changes in fund balances*	IS	Mach		X			X							
- *HEGIS required details of endowment*	IS	Mach		X			X							
- *HEGIS required physical-plant indebtedness in total*	IS	Mach		X			X							
- Other physical-plant indebtedness for auxiliary enterprises, hospitals, and all other N/A														
- Retirement-fund contributions by a government source for an institution N/A														
- *HEGIS required debt outstanding, issued, and retired amounts in total for long-term and for short-term*	IS	Mach		X			X							
- Other debt outstanding, issued, and retired amounts for long-term for auxiliary enterprises, hospitals, and all other N/A														
- *HEGIS required total interest paid from all funds*	IS	Mach		X			X							
- Debt-service amounts and purchases of capital assets by source N/A														

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State: Kentucky

INFORMATION STRUCTURE	DESCRIPTION OF DATA AVAILABLE			STATE-AGENCY FUNCTIONS AND DATA USES										
Major Area / Data Categories/Data Items	Level of Aggregation	Mechanical Status	Institutional Scope	Federal Reporting	Long-Range Planning	Mission/ Role/ Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
Institutional Information (Continued)														
Facilities			Publics and Privates									N/A		
- *HEGIS required assignable square feet by room-use categories and by building condition (Inventory of College and University Physical Facilities, OE form 2300-7, last required this type of facilities information in September 1974. NCES form 2300-7, with the same title, will be used in 1980-81 and will be limited to institutional information about physical facilities for the mobility impaired.)*	IS	Mach		X						X				
- Station counts for class labs and classroom facilities; weekly student hours for classroom facilities N/A														
- Estimated replacement cost by building condition type N/A														

NOTE: In addition to the data already identified in this table, Kentucky's Council on Higher Education has the following data:

Not Mechanized
- Faculty vitae (collected on a one-time basis only)
- More detailed financial data (to provide quarterly reports to Kentucky's Department of Finance)
- Special study data for:
  - Health-related manpower planning
  - Institutional burden/costs of doing external reporting
  - Teacher-education surveys

Mechanized
- Average faculty-salary data for other benchmark institutions
- More detailed student-specific data (for on site auditing of the accuracy of student and course enrollment data)
- Health-related manpower planning data

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planning effort, representing the public and private colleges and universities in Kentucky, professional and business organizations, Kentucky state-government agencies and departments, civic and service organizations, and the general public. (Figure 11 indicates the wide range of issues addressed by the Phase I report, Kentucky and Comprehensive Planning for Higher Education: A Phase I Report, January 1976.)

The longer-range Phase II planning effort has developed more into a policy-development process than a document-oriented effort. An initial step in that effort was staff preparation and Council approval of A System of Higher Education in Kentucky including University Mission Statements. The published statement presents the Council's case for developing a system of higher education in Kentucky within which "each component institution should have a specific mission, in accordance with its unique capabilities and possibilities for service." The Council's statement spells out a set of higher education goal-oriented principles for the system and presents a role and mission classification structure (figure 12) upon which its specific recommendations for the role and mission of each institution are based.

Neither the Phase I report nor the statement of university missions is a data-intensive document. Implementing the Council's recommendations, particularly those related to program approval, will have data consequences that will be addressed in the section on program review.

Budgeting

The budgeting responsibilities of the Council are the most data intensive of all staff activities. Driven mainly by the Council's responsibility to review the budget requests of the public institutions, the activity includes an annual IEP-based cost study (which began with 1975-76 data) and maintenance of systemwide budget formulas. Formulas have been used to prepare and review budget requests for Kentucky's public higher-education institutions in the past. Adopted by the Council on Public Higher Education on July 15, 1963, formulas were used to prepare institutional budget requests for the 1964-65 biennium.

The formula development received its real emphasis on January 27, 1976, when the Council approved the following policy: "that the Financial Affairs Committee and Council staff develop a 'Program Funding by Formula' method for determining State General Fund support of public higher education for submission to the Council." This method, to be used beginning FY1978/80, considers varying institutional missions and responsibilities and "the feasibility of establishing long-range salary and wage objectives for faculty, and professional and technical support personnel employed by public higher education institutions."

Between February and October 1976, the Council staff, in concert with designated institutional representatives, developed a "Program Funding by Formula" method for determining State General Fund Support of public higher education. The effort was guided by the belief that:

Figure 11

Kentucky and Comprehensive Planning for Higher Education: A Phase I Report--Summary of Issues

Issues Related to Student Access to Higher Education

- Historical Barriers
- Preparation for College
- Selective Admissions
- Student Financial Aid
- Tuition Rates

Issues Related to Instruction, Research, and Public Service

- Institutional Missions
- Statewide Coordination among Institutions
- Programs of Instruction
- Graduate Education
- Continuing Education
- Research
- Public Service
- Educational Computing Services
- Library Services
- Educational Television

Issues Related to Some Specific Areas of Instruction

- Health-Sciences Education
- Legal Education
- Engineering Education
- Agricultural Education

Issues Related to Organization and Management Practices

- Institutional Growth
- Interinstitutional Cooperation
- Postsecondary-Institution Licensing
- Data-System Development
- Cost and Cost-related Information
- Priority Determinations
- Physical Plant
- Energy Conservation
- Community-College System

Issues Related to Financial Support and Planning

- State Support of Higher Education
- Legislated Commitments
- Biennial Appropriations Requests
- Program Funding by Formula
- Financial Planning

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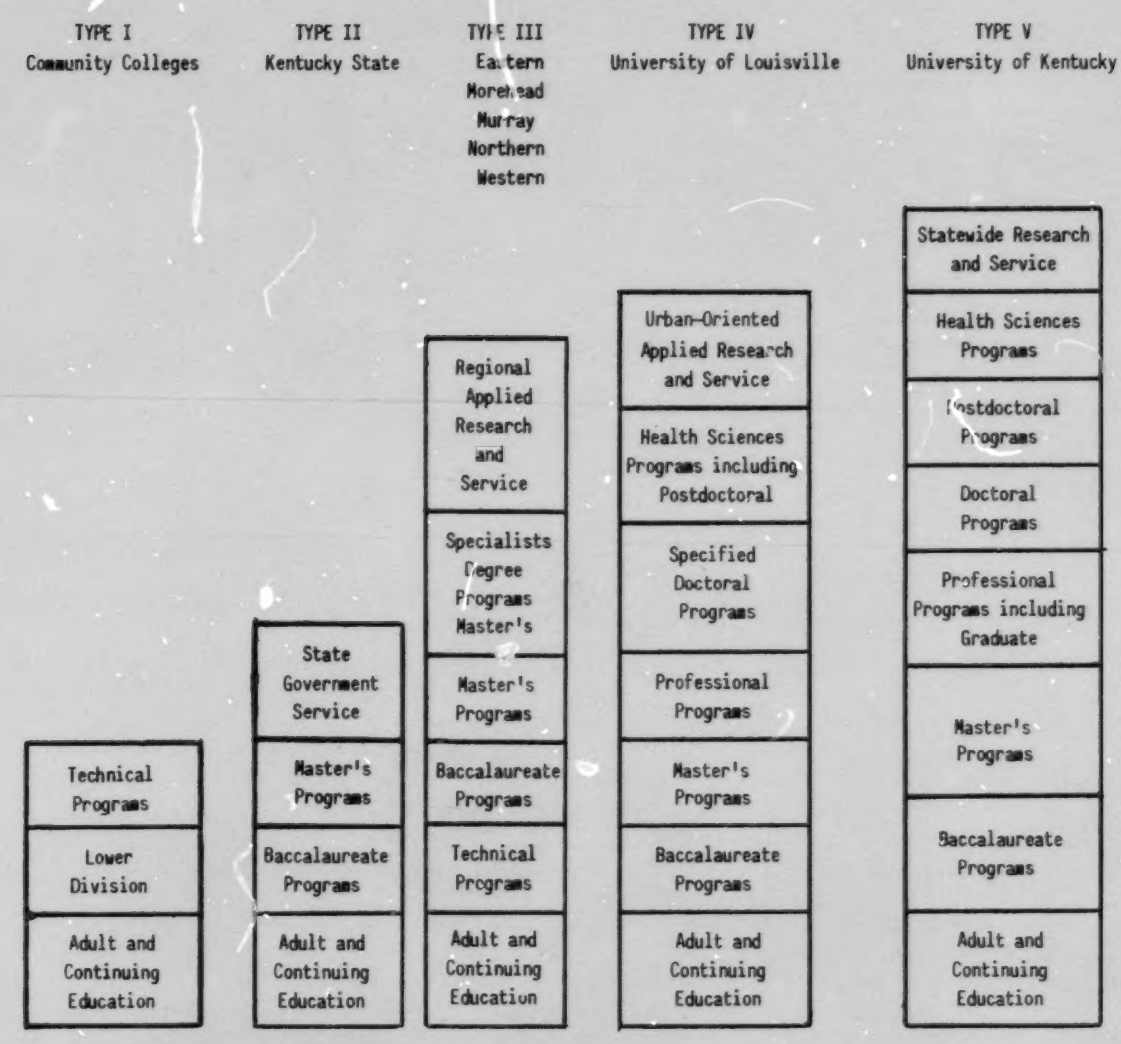
Figure 12

Classification of the System of Kentucky Higher Education
As of July 1977



- Available state appropriations should be distributed among the public higher-education institutions on an equitable, objective basis

- Financial support from state appropriations and from student charges should adequately meet the reasonable basic instructional needs of the public higher-education institutions

- Available state appropriations should be distributed among the public higher-education institutions in differing amounts depending on the number of students and the types and levels of instructional programs

The staff worked to keep the formula relatively simple and consistent with the objective of recognizing institutional differences. Start-up and other unusual costs are handled separately. Institutions have the prerogative to distribute appropriated funds in accordance with individual priorities.

A brief summary of the Kentucky formula follows:

Formula Category	Base	Formula Factor
Instruction		
General Academic and Occupational/Technical	Projected FTE students	Student/faculty ratios and benchmark salaries
Preparatory and Adult	Freshmen and sophomores scoring less than 12 on the ACT	Dollar rate per base student
Academic Support	Projected FTE students	Dollar rate per base student
General Administration	Projected head-count students	Dollar rate per student, decreasing by enrollment size (plus) percentage of state support of primary programs
Libraries	Previous year's total SCH	Percentage rate of base

Formula Category	Base	Formula Factor
Plant Operation and Maintenance		
- Custodial and general maintenance	Gross square footage	Dollar rate per base by category of space
- Grounds	Total acres of landscaping and paving	Dollar rate per base

The Kentucky cost study is based upon the NCHEMS Information Exchange Procedure and uses the Program Classification Structure. The resulting data are used in the analysis leading to Council action on tuition levels and for the planning component of the budget process. It is the policy of the Council not to use such cost data for budget allocation or for budget management and control.

The most data-intensive activity of the financial agenda of the Council is the development of the Statewide Planning Forecasts, Projections, Studies, Analyses and Guidelines for institutional use in developing budget requests. The data provided in the document (outlined in figure 13) are developed by the financial staff of the Council from institutional data available in the agency MIS, demographic data available from other state agencies, from the cost study, and from applications for program approval.

The Council has a well (and clearly) documented, planning-oriented set of financial activities. The amount and level of detail required by those responsibilities are justified by the staff in terms of basic Council responsibilities. Figure 14 indicates how Council responsibilities and finance-staff activities relate. Figure 15 relates the same Council responsibilities to the financial data required to support th[illegible]

Program Review

New Programs. The Council considers new program proposals at two regularly scheduled meetings each year--in January and July. Proposals must be received by the Council at least 60 days prior to the meeting at which they will be considered. Each new program proposal will be viewed as a comprehensive institutional plan that has the approval of the institution's board and president, and is developed in a format specified by the Council.

The basic content of each proposal includes:

- Program Justification
  - Projected enrollment, probable source of student, and projected number of graduates
  - Evidence concerning current and future needs for graduates of the program

Figure 13

Kentucky's Statewide Planning Forecasts, Projections, Studies, Analyses, and Guidelines—Summary of Data Provided

I. Status of financial support and administration

- A. Expenditures -- historical patterns and levels
- B. Sources of revenue
- C. State support of higher education
  1. Historical patterns and levels (statewide and institutional)
  2. Impact of inflation (includes comment on increased cost of energy)
  3. Impact of underfunded enrollment growth
  4. Impact of adding institutions
  5. Comparison with contiguous and comparable states
- D. Major programmatic deficiencies
  1. Faculty salaries (status and loss of purchasing power)
  2. Student-faculty ratios
  3. Physical-facility maintenance
  4. Libraries
  5. Student financial aid (institutional variations, composition and trends of student costs)
  6. Research and public service

II. Projected financial needs for statewide public higher-education system (includes comment on interaction among goals, missions, plans, financial requirements)

- A. Public institutions
  1. Special programmatic requirements
     a. Faculty salaries (benchmark levels by type of institution)
     b. Student -- faculty ratios (by type program)
     c. Physical facilities (improved maintenance and new facilities)
     d. Libraries
     e. Student financial aid
     f. Enrollment growth
     g. New programs
  2. Expenditures -- patterns and levels
  3. Sources of revenue
  4. Impact of inflation (includes comment on projected economic changes)
- B. Council on Higher Education (CHE)
- C. Kentucky Higher Education Assistance Authority (KHEAA) -- the state student-assistance agency
- D. Financial needs -- sources of revenue of physical-facilities program
- E. State support of higher education
  1. Operating revenue
  2. Physical facilities
  3. Total

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Figure 14

Financial Responsibilities and Related Functions of The Kentucky Council on Higher Education

1. Engage in analysis... determine overall needs of higher education...	2. Develop and transmit to the Governor Comprehensive Plans... which meet needs of Kentucky.	3. Determine amount of Entrance and/or Registration Fees...	4. Consider the requirements and review the budget requests of the institution....submit recommendations.	5. Review and approve all Capital Construction Projects the cost of which exceeds $100,000	6. Require (needed) reports from the Executive Office of each institution...	7. Publish annually a report of the Educational and Financial Affairs of the Institutions...	8. Define and approve all degree programs...
This is a broad statement of Council powers and duties.			-Developing recommendations for expanding, consolidating, or eliminating programs.				
		-Determining the adequacy of entrance and/or registration fee levels.					
				-Examining the need for each capital project and the anticipated cost of construction.			
					-Utilizing reports to carry out Council financially related powers and duties.		
	-Relating the current sources and uses of funds to assist in evaluating institutional plans.		-Relating the current sources and uses of funds to assist in evaluating budget requests.				
	-Evaluating institutional financial status and needs.		-Evaluating institutional financial status and needs.				
					-Comparing actual and projected use of funds.		
	-Suggesting modifications to future allocations of state resources among these public institutions of higher education to improve equity.		-Suggesting modifications to future allocations of state resources among these public institutions of higher education to improve equity.				
		-Establishing differential fee levels for high cost programs.					
						-Analyzing the financial status and performance of the public institutions of higher education.	
	-Utilizing cost information as one of the inputs for improving the statewide distribution of resources.	-Utilizing cost information as one of the considerations in establishing tuition rates.	-Utilizing cost information as one of the inputs for improving the statewide distribution of resources.				-Utilizing cost information as one of the inputs for program evaluation and approval.
			-Identifying alternative ways of supporting operations.	-Identifying alternative ways of supporting operations.			
			-Determining the manner in which institutional budget requests are submitted.				
							-Evaluating institutional requests to establish programs.

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Figure 15

Relationship of Financial Reports to the Financial Responsibilities Of the Kentucky Council on Higher Education

REPORT TITLE	1. Engage in analysis... to determine overall needs of higher education...	2. Develop and transmit to the Governor Comprehensive Plans... which meet needs of Kentucky.	3. Determine amount of Entrance and/or Registration Fees...	4. Consider the requirements and review the budget requests of the institutions...submit recommendations.	5. Review and approve all Capital Construction Projects the cost of which exceeds $100,000	6. Require (needed) reports from the Executive Office of each institution...	7. Publish annually a report of the Educational and Financial Affairs of the Institutions...	8. Define and approve all degree programs...
A. Basic Financial Statements	This is a broad statement of Council powers and duties.							
1. Balance Sheet		*		*	*		*	
2. Statement of Changes in Fund Balances		*		*	*		*	
3. Statement of Current Funds Revenue, Expenditures, and Other Changes		*	*	*			*	
4. Summary of Significant Accounting Policies and Notes to Financial Statements		*	*	*	*		*	*
B. Supporting Detailed Balance Sheet Schedule								
1. Schedule of New Construction and Alterations and Improvements in Progress		*		*	*	*		
2. Schedule of Notes and Bonds Payable		*		*	*	*		
3. Schedule of Allocated Unrestricted Current Fund Balances		*		*	*	*		
4. Schedule of Expendable and Nonexpendable Fund Balances		*		*	*	*		
C. Supporting Detailed Revenue and Expenditure Schedules								
1. Current Funds Revenue Schedule		*	*	*	*	*		*
2. Current Funds Expenditures and Transfers Schedule		*	*	*	*	*		*
D. Cost Information								
1. Annual Cost Studies		*	*	*				*
2. Special Cost Analyses						*		*
E. Budget Information								
1. Annual Budgets				*				
2. Biennial Budget Requests				*				
F. Integrated Academic, Physical Facilities, and Financial Plans		*	*	*	*			*
G. Annual Report of Institutional Educational and Financial Affairs							*	

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- Justification for any duplication
- Similar programs in the institution, the state, and in states contiguous to Kentucky

• Program Quality and Resource Requirements

- Admission and degree requirements
- List of faculty members associated with the program
- Physical facilities available
- Library support
- Certification or accreditation

• Program Costs

- Estimated expenditures for the remainder of the currently biennium and for the following biennium
- Sources of revenue to support the program

The only role MIS plays in the new program approval process is in verifying certain data in the application of statewide program needs and in supporting staff background analyses of those needs.

Existing Program Evaluation. In 1976, the Council established a moratorium on all approvals of new graduate programs, pending completion of a review of all existing programs. The review process was defined to include baccalaureate degree programs as well. The review of doctoral programs was conducted by a Graduate Program Review Panel, using a process similar to that used for institutional classification. Each doctoral-degree-granting institution evaluates its own programs and provides the results of the review to the Panel in a format provided by the Panel. The Panel then selects certain programs for an in-depth study. The in-depth study is conducted both by the institution and by peer-group representatives of other Kentucky institutions.

The Review Panel then reviews both evaluations and makes recommendations to the executive director of the Council. At this time, the process of evaluation has not reached the point of formal recommendations to the Council. Due to the overlap of the various levels of programs, it was decided to review all levels prior to reaching any decisions about retrenchment of existing offerings. The aim is to develop a program registry that will allow a point of departure for future decisions.

The review of master's and specialist programs does not involve a review panel. Again, each institution evaluates its own programs, but in this case the results of the review are reported directly to the Council staff in a standard format developed by the staff. A separate report is required for each graduate-degree program and for each degree level within the program. Figures 16 and 17 describe the student and cost data required for each program. Program descriptive data and outcomes data (current and projected needs for graduates, past employment record of graduates, impact of research and public service, importance of program to other departments in the institution) are also required.

Figure 16

Student Program and Major Discipline Costs by Level as Used by The Kentucky Council on Higher Education

INSTITUTION _____ STUDENT PROGRAM _____ DISCIPLINE _____

1. UNIT COST BY STUDENT PROGRAM AND LEVEL

Student Level*	Number of Student Program Credits	Student Program Direct Cost	Direct Cost Per Student Program Credit	Student Program Full Cost	Full Cost Per Student Program Credit
Undergraduate (Lower Division)					
Undergraduate (Upper Division)					
Graduate I					
Graduate II					
Independent Study					
Post Doctoral					

2. UNIT COST OF MAJOR DISCIPLINE AND COURSE LEVEL

Course Level*	Number of Semester Credit Hours	Discipline Direct Cost	Direct Cost Per Semester Credit Hour	Discipline Full Cost	Full Cost Per Semester Credit Hour
Undergraduate (Lower Division)					
Undergraduate (Upper Division)					
Graduate I					
Graduate II					
Independent Study					
Post Doctoral					

3. DISTRIBUTION OF REVENUE TO MAJOR DISCIPLINE AND COURSE LEVEL

Course Level*	RESTRICTED REVENUE		UNRESTRICTED REVENUE						TOTAL COST AND SOURCE OF REVENUE
	Gifts, Grants and Contracts	Other	Sales and Services	Transfers	Federal-Local Appropriation	Tuition and Fees	State Appropriations	Other	
Undergraduate (Lower Division)									
Undergraduate (Upper Division)									
Graduate I									
Graduate II									
Independent Study									
Post Doctoral									

*As defined in instructions for Annual Cost Study.

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Figure 17

Student-related Data Required by the Kentucky Council on Higher Education

Item	1972-73	1973-74	1974-75	1975-76	1976-77
1. Total applicants (fall semester)	____	____	____	____	____
2. Qualified applicants--total applicants minus obviously unqualified applicants (fall semester)	____	____	____	____	____
3. Number of applicants accepted for admission (fall semester)	____	____	____	____	____
4. Number of accepted students who actually enrolled (fall semester)	____	____	____	____	____
5. Source of new students enrolled (fall semester)					
a. In-state	____	____	____	____	____
b. Out-of-state	____	____	____	____	____
c. Foreign	____	____	____	____	____
6. Total head count enrolled (fall semester)					
Full-time	____	____	____	____	____
Part-time	____	____	____	____	____
7. Degrees conferred (academic year)	____	____	____	____	____ (Estimate)
8. What is the maximum number of students that this program could accommodate during the 1976-77 academic year without additional resources?					____

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The format for the baccalaureate-program review is similar to that for the master's- and specialist-degree programs but with more emphasis on required academic support services and student characteristics. The Council also coordinates off-campus offerings. Each institution is responsible for formulating an off-campus instructional plan and notifying the Council staff of its intent to offer off-campus instruction. The notification consists of a comprehensive listing of courses organized by location and by degree program(s) with each location. Each institution designates an individual to act as its off-campus coordinator, and each coordinator receives the instructional plans of other institutions for review and comment. The Council staff reviews proposed offerings for duplication of efforts and to resolve possible conflicts.

Health Programs Planning

Shortly after the 1972 legislation establishing the Council's role in statewide coordination and planning, the presidents of the University of Kentucky and the University of Louisville drew attention to the particular need for cooperative and coordinated planning in the field of health-sciences education. In response, at the October 11, 1972, meeting, the Council approved the establishment of an Advisory Committee for the Health Sciences Fields (now called the Health Sciences Advisory Committee). The original members of the Committee were health educators, health consumers and providers, and representatives of the two health-sciences centers and the regional universities.

The purpose of the Advisory Committee was to help coordinate program development in the professional and technical health fields. The Advisory Committee served as the arm of the Council charged with providing continuity in the study and ongoing planning for the development of the state's system of higher education with respect to health.

The following topics received detailed attention:

1. Identification of issues and trends in health-sciences education
2. A survey of health-science-education programs in the Commonwealth
3. A survey of manpower in health-sciences education and protected needs
4. A procedure for reviewing health-science-education program proposals from colleges and universities
5. A statewide plan for health-science-education programs based on manpower requirements projected and other factors that may affect the field (including costs)
6. Orientation of a new teaching hospital into a statewide health-science-education plan

7. Procedures for annual update of health-science-manpower survey

8. Other factors that may affect the future of health-science education

Phase I of the effort identified the issues, made recommendations, and called attention to deficiencies in policies, procedures, and data that must be addressed before a definitive long-range plan can be developed. Phase II is concentrating on a longer-term view articulating a plan for health education considering the issues identified in Phase I. Phase II is supported by the collection of accurate and validated manpower data and an analysis of the health status of the population.

Phase I resulted in a six-part set of documents, published in September 1975 and containing detailed recommendations regarding each of the health professions indicated in figure 18. Phase II of the Comprehensive Plan is viewed as the development of a planning process and is currently being developed by the staff. A document is to be published in the near future explaining the planning approach.

Capital Construction

The Council is responsible for reviewing and approving all instructional construction projects costing more than $100,000. Projects are submitted to the Council in a standard prescribed format and reviewed according to the following criteria:

- Consistency with the institution's mission and other aspects of the state and institutional educational plans.

- Consistency of the project with the Comprehensive Facilities Development Plan. The Comprehensive Facilities Development Plan is a document prepared by each institution with a rather comprehensive, long-range projection of the physical facility needs for its particular campus.

- Impact on campus space utilization.

- Availability of financing.

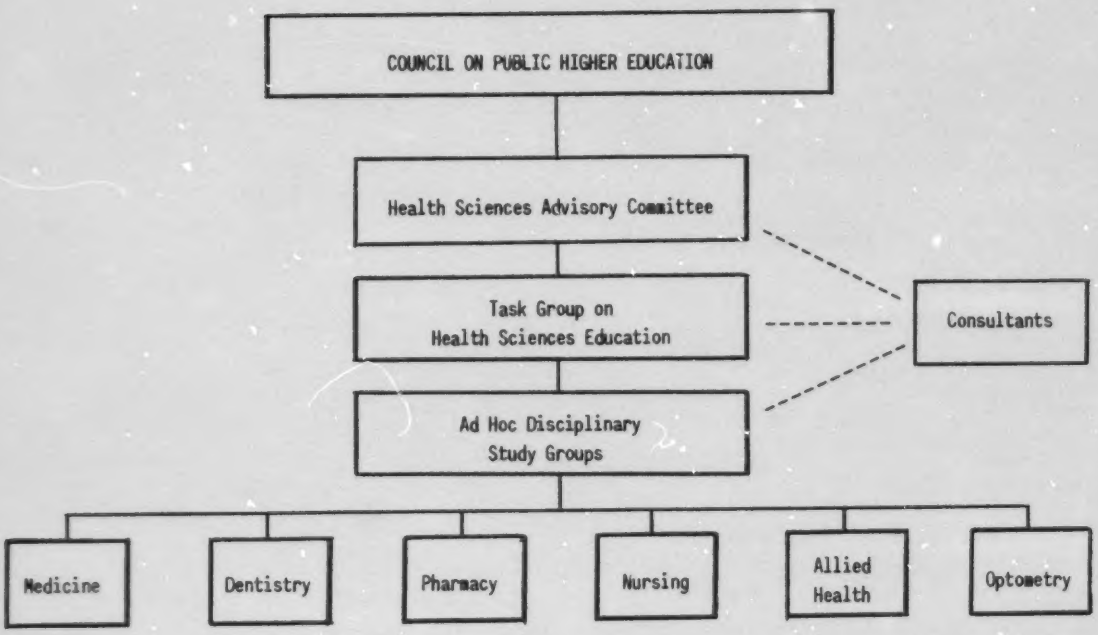
Following review of project plans by the State Bureau of Facilities Management, the Council staff processes the project for Council action. Council approval is final unless the project changes more than 10 percent in total space or planned use of space.

Developmental Schedule and Resources

As mentioned elsewhere in the project documents, precise cost guidelines for estimating the time and resource requirements for an information-system-

Figure 18

Organizational Chart for the Study of Health Sciences Education
In the Commonwealth of Kentucky
As of September 1975



development effort have not been feasible to develop. Instead, the project and pilot-test-state staff have developed as complete a picture as possible of the time and resource environment within which each agency has been working.

Table 12 describes the developmental history in Kentucky; table 13 describes the identifiable costs associated with the effort. In using this information as a guide to estimate the schedule and budget for another state, the user must carefully consider that CHE is in a relatively early stage in the computerization of its data and in the completion of the total information-system design needed to address the broad range of responsibilities assigned to it.

Conclusion

The CHE/KCES data-collection and analysis effort is unusually well-defined and organized considering the recent starting date for the effort. The data collection is extensive, but is not excessive considering the sweeping coordinative responsibilities that have been assigned to CHE since 1972.

The strongest use of available data is occurring in the financial analysis area where a thorough, well-documented, planning-oriented budget effort extensively uses data as a context for institutional budget-request development and for background analyses by the Council staff.

CHE has proceeded deliberately with the development of its data base and is already actively involved in the full range of responsibilities usually associated with state-level postsecondary-education coordination; major changes in the data set are unlikely. However, a constant evaluation of each data item is intended to assess the value of retaining that piece of information in the overall data base. It would be difficult, if not impossible, to assess the need for any bit of data until a longitudinal study can be accomplished. Kentucky, for instance, is on a biennial process and items may not be used except on a two-year cycle. Any data-evaluation procedure would have to be tailored to the needs of the users of the data base and it would be difficult, if not impossible, to establish a comprehensive set of standards that would apply to all states equally.

The CHE continues to work with the Council for Independent Kentucky Colleges and Universities (CIKCU) to identify data needs uniquely related to independent higher education. CIKCU is now working on state-level information needs for its member institutions, supported in part by a grant from the Ford Foundation. As that project develops, the Council should be better able to assess the usefulness of its MIS for independent higher education.

Table 12

Chronological Summary of Major Activities Related To the State-Level Information System in Kentucky

1934 The Council on Public Higher Education (CPHE) was established (with subsequent amendments in structure and function in 1966, 1972, and 1977) to serve as a statutory coordinating agency for the state.

1963 CPHE began collecting enrollments and degrees-conferred information from institutions.

1966 With the advent of HEGIS, CPHE became the state coordinator for institutional reporting.

Physical-facilities data were mechanized at CPHE.

1973 CPHE adopted NCHEMS products as the conceptual framework for its MIS.

A committee of institutional representatives was formed by CPHE to develop the procedures for adopting the NCHEMS methodology and for installing the account crossover in each institution to provide a consistent chart of accounts.

1974 CPHE initiated its first cost study utilizing the NCHEMS Information Exchange Procedures (IEP) cost concepts.

1975 CPHE became a pilot-test state in the State-Level Information Base project and commenced planning the development of an integrated MIS.

1976 CPHE began implementing the MIS.

CPHE started the second cost study and also the full implementation of IEP and related data requirements.

CPHE began compiling the academic program inventory (which relates to the academic program review activities.

1977 The name of the Council on Public Higher Education was changed to the Council on Higher Education (CHE) to reflect its broader responsibility for private as well as public institutions.

The Governor of Kentucky assigned two additional responsibilities to CHE:

- Established authority for CHE to approve all degree and certificate programs in state-supported higher-education institutions.

- Established a Kentucky Center for Education Statistics within CHE to serve as the primary agency for collection, storage, and use of postsecondary-education data.

1978 CHE began using formula budgeting and began conducting on-site audits of institutional student enrollment.

CHE began mechanizing the academic program inventory.

Table 13

Cost of the State-Level Information System in Kentucky 1975-76 through 1977-78

Kentucky Council on Higher Education (CHE)

Fiscal Year	Activity		Total Costs (e)
1975-76	CHE continued routine data-collection activities (a)		
	Personnel salaries and benefits		$ 15,000
	CHE staff included 2 staff monitoring data and a programmer providing simplified retrieval services		
	Computer costs, including retrieval and execution time, printing, and storage		20,000
		Total	$ 35,000
1976-77	CHE began development of an integrated state-level system (b)		
	Personnel salaries and benefits		$ 33,000
	CHE staff included a systems analyst, 2 staff monitoring data, and partial time of the Deputy Executive Director for Administration	$30,000	
	Contracted keypunching services as needed	$ 3,000	
	Computer costs, including retrieval and execution time, printing, storage (c)		24,000
	Developmental efforts (15%)	$ 3,600	
	Regular and special processing (d)	$20,400	
	Peripherals		1,800
	Rental of 2 terminals ($150/month)		
	Developmental efforts (10%)	$ 180	
	Regular and special processing (d)	$ 1,620	
		Total	$ 58,800
1977-78	Continued development of an integrated state-level system Management participation in use of data was increased		
	Personnel salaries and benefits		$ 53,000
	CHE staff included a director for management and information systems, an assistant director for data processing, 2 staff monitoring data, and partial time of the Deputy Executive Director for Administration	$ 50,000	
	Contracted keypunching services as needed	$ 3,000	
	Computer costs, including retrieval and execution time, printing, storage (c)		$ 35,000
	Developmental efforts (15%)	$ 5,250	
	Regular and special processing (d)	$ 29,750	
	Peripherals		$ 17,400
	Data 100 and telephone line ($1,300/month) and rental of 2 terminals ($150/month)		
	Developmental efforts (10%)	$ 1,740	
	Regular and special processing (d)	$ 15,660	
		Total	$105,400

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(a) Prior to the development of an integrated MIS, the part of the data collected by CHE that was mechanized included selected HEGIS data (enrollments, degrees conferred, facilities) and detailed information on building inventories and on medical school applicants. There were no routine reports programmed to retrieve this mechanized information; thus data were retrieved via special research programs as needed.

(b) The purpose of developing an integrated MIS was (1) to evaluate all data collected, (2) to determine what was needed and used the most, and (3) to make sure that the data were mechanized and that production reports were specified. (The data that have been identified include earned degrees, enrollments supplemental to HEGIS, financial statistics from HEGIS, physical facilities, and budgeting information.)

(c) CHE accesses computer facilities at the Kentucky Department of Finance (which has an IBM 370/168-3 and a Lazer printer and that uses IMS and MARK IV as its data-base management structure). CHE thus has the services of highly trained staff to maintain the data base and system and access to sophisticated hardware and software. An additional saving will be the printing and binding of production reports as they come off the computer.

(d) Special processing includes one-time or short-term research-oriented retrieval of data, such as for studies of teacher education, health education, enrollment projections and so forth.

(e) All costs were supported by state funds. Not reflected in these figures are some costs attributed to intrastate travel in regard to development of the state-level MIS. Costs attributed to developmental, as opposed to operational, activities are estimated at $36,780 in 1976-77 and $59,990 in 1977-78.

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VI.

NEW JERSEY DEPARTMENT OF HIGHER EDUCATION

Background and Functions

The Board and Department of Higher Education were established by the legislature in 1966 as part of a move to separate responsibility for state-level planning and policymaking for higher education from the Department of Education. Typical of legislation establishing state-level agencies at that time, the move consolidated a number of higher-education functions that had been previously assigned to other agencies into a comprehensive, well-integrated statement of state-level higher-education coordinative responsibilities.

The Department is governed by a Board of Higher Education, on which are represented the various institutional constitutencies (the state colleges and county colleges through their respective councils, the president of the State Board of Education, and a representative of the private colleges and universities) and nine citizens. The chancellor of Higher Education directs the Department and serves as secretary to the Board. The Department is a cabinet-level agency, and the chancellor serves on the governor's cabinet.

The Department is organized into five main divisions: academic affairs, health and professional education, student assistance, personnel policy, and administration. The Offices of Research and Management Systems, instrumental in the pilot-test experience, are located in the Divisions of Academic Affairs and Administration, respectively. Responsibility for budget and facilities planning is located in the Administration Division. The Department has a staff of 82 full-time professionals, only one of whom is directly involved in developing and maintaining the information system.

The Board, when supplemented with three additional members (representing proprietary schools, vocational-technical schools, and the vocational advisory council), serves as the 1202 Commission and coordinates the collection of HEGIS information.

The Department's three basic functions are budget preparation, planning, and program review. It is also responsible for (1) administering a series of programs for student assistance, including scholarships, loans, and a special program of educational opportunities funds intended to improve access to education for the disadvantaged; (2) conducting research on higher-educational needs; and (3) maintaining a clearinghouse for data inventory and information regarding state and federal programs.

New Jersey residents can receive their undergraduate education in any of five different types of institutions:

1. Community colleges (18)
2. Public four-year colleges (9)
3. Public state university (1)
4. Four-year independent colleges and universities (24)
5. Two-year independent colleges (2)
6. Public institute of technology (1)

In 1973, approximately 26 percent of New Jersey's first-time, full-time undergraduates entered higher education at community colleges. By 1977, the percentage had risen to 43 percent. In the 1977-78 school year, 41,000 full-time students were attending New Jersey community colleges, accounting for one-fourth of all full-time undergraduates in New Jersey. Approximately 40 percent of the state's part-time undergraduates were enrolled in community colleges during the same period.

Also in 1977, approximately 21 percent of all New Jersey first-time students entered higher education as freshmen at state colleges. About 29,000 New Jersey residents and 1,500 out-of-state residents were full-time undergraduates at the three campuses of Rutgers and at the Newark College of Engineering. About 15 percent of the state's first-time, full-time students were enrolled in these institutions.

About 38,000 New Jersey residents and 3,500 out-of-state residents were enrolled as undergraduates in independent colleges. About 19 percent of all New Jersey residents who were firt-time, full-time students entered higher education through these schools.

Approach to Information Systems

The Board of Higher Education has existed for 11 years. The Department of Higher Education, staff arm to the Board, has collected and transmitted HEGIS data since 1968-69 and has been the official HEGIS coordinating agency since 1973. Specific responsibilities regarding budget review and operation of state-funded programs for student financial aid predated the staff role as a data coordinator, resulting in establishment of separate data bases for review and consolidation of the public senior institution budgets and for the student-financial-aid area. The community-college office still maintains its own data base for budget review and FTE enrollment monitoring purposes.

Three to four years ago, the Department began a planning-oriented data-collection effort separate from the requirements for student financial aid and budget data. This effort, referred to as the New Jersey HEGIS, incorporates all the federal HEGIS data-reporting requirements plus New Jersey supplemental surveys to serve particular needs of the Board of Higher Education.

The need for these supplemental surveys and the separate planning-oriented data base was stimulated by the New Jersey master planning efforts beginning in 1970. Following that planning effort, there was a review of the NCHEMS Statewide Measures Inventory as a possible guide for establishing definitions that would be compatible with other states. While the Statewide Measures Inventory did not provide standards for interstate compatibility, the State-Level Information Base project originally did have that purpose, and New Jersey's participation in the project was motivated largely by the potential for extending its data-base development effort in directions that would be compatible with the data-collection efforts of other states.

New Jersey's data-collection plans are developed by the staff in early winter, then reviewed in a series of workshops, one for each sector of institutions. Final changes are made in the surveys in the spring, and the package is then mailed to the institutions at the same time as the federal HEGIS package. The 1977-78 total survey package included 21 separate surveys, 5 of which were federal HEGIS and the other 16 of which served special Board of Higher Education Planning and coordinating needs.

The other major activity for New Jersey during the State-Level Information Base project has been the automation of its New Jersey HEGIS data base. The Department had planned to automate its planning data for some time. During the pilot test, steps toward automation have been taken, working with the Department staff and with the New Jersey Educational Computing Network, a state agency responsible for providing consultant services in the computer area. As a part of that effort, and with the assistance of the project staff, machine edit routines have been obtained for the federal HEGIS surveys, and special edit programs have been developed for the New Jersey surveys.

Plans are to add to the New Jersey HEGIS those additional data elements or surveys that are necessary to be responsive to the studies related to the

scheduled update of the long-range master plan and to support other analytical studies spelled out in the planning agenda presented by the new chancellor in September 1977. Because of its transactional nature, the financial-aid data set will probably remain separate. However, a financial-aid survey instrument is being developed for the New Jersey survey series to support aggregate needs analysis considering federal, state, and institutional aid.

Data Set

During the developmental and testing stage of the State-Level Information Base project, each pilot-test state was asked to indicate the specific data included in its information system. Each state did so, based upon the comparison of its information system as of May 1978 to the 1977 Field Review edition (Technical Report 85) of the State-Level Information Base project. Each state also identified other major types of data that were included in its information system at that time but were not included in the preliminary version of the State-Level Information Base project's proposed data.

The project's final data framework, contained in the document entitled Postsecondary-Education Information Systems at the State Level: Selection of Data to Address Planning Issues, is not the same as the preliminary data set. The final framework was designed to be more flexible and adaptable than that contained in Technical Report 85. Also, each state has made minor changes in its data set since May 1978. Still, the earlier comparison tables provide a reasonable current indication of how each pilot-test state's data set compares to the guidance offered by the State-Level Information Base project. Table 14 is the comparison table for the New Jersey Department of Higher Education.

Agenda

The major determinant of the current agenda for the Department of Higher Education (DHE) is a paper issued by Chancellor Hollander on September 7, 1977, entitled, "An Examination of Issues for the Higher Education Community." The paper is an excellent example of a clearly defined state-agency analytical agenda. It outlines proposals for staff activities in four major areas: planning and coordination, improvement of quality, extending acess and opportunity, and accountability. The paper not only spells out the activities the chancellor expects the staff to address, but it does so in a policy framework, in an open environment, and at the beginning of the planning process rather than during or at the end (as is so often the case). The proposed "plan of action" was endorsed by the Board of Higher Education on January 27, 1978.

The following is the outline of the DHE agenda. The specific activities in the agenda will be addressed here under the major staff function (long-range planning, budget review and analysis, program review and analysis, student-financial-aid operations, facilities analyses, and research) to which they most closely relate:

- Planning and coordination
  - A new statewide plan

TABLE 14

POSTSECONDARY-EDUCATION INFORMATION SYSTEMS AT THE STATE LEVEL
INFORMATION STRUCTURE AND FUNCTIONAL USES OF DATA
Detail by Pilot-Test States

As of May 1978

State: New Jersey
Agency: Department of Higher Education (DHE)

INFORMATION STRUCTURE	DESCRIPTION OF DATA AVAILABLE (a)			STATE-AGENCY FUNCTIONS AND DATA USES										
Major Area / Data Categories/Data Items	Level of Aggregation	Mechanical Status	Institutional Scope	Federal Reporting	Long-Range Planning	Mission/Role/Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
State Information	N/A	Aces	N/A					N/A						
Population Characteristics of State														
· Census in total, by county, by population density											X		X	
· Distribution of family income											X		X	
· Education attainment by county for levels within elementary, secondary, college, and vocational education											X		X	
· Elementary/secondary enrollments by public/private by locality											X		X	
· High-school graduates by sex by race by locality											X		X	
· High-school-equivalency recipients by sex for state											X		X	
Occupancy Outlook of State														
· Employment summary by industry type and by occupational classification for state											X		X	
· Job applicants/openings by occupational classification for state											X		X	
Finances of State														
· State and local revenues							X							
· State and local appropriations/expenditures							X							
· Student financial aid available from state through state agency, including number of recipients (and their characteristics) and dollar amounts of aid							X							
National Information														
Occupation Outlook of Nation														
· Employment summary by industry type and by occupational classification for nation N/A														
· Job applicants/openings by occupational classification for nation N/A														
Finances														
· Student financial aid available from federal government directly to students N/A														

NOTE: N/A indicates not applicable.

(a) Description of Data Available for State Agency's Use:
Level of Aggregation within Agency
ID: Institutional Detail (such as individual student data)
IS: Institutional Summary (totals by institutions only)
SS: State Summary (totals for all institutions or groups of institutions only)

Mechanized Status within Agency:
Mech: Data are, or will be, mechanized
No: No plans to mechanize hard copy
Aces: Data accessible outside agency but not maintained at agency

Institutional Scope:
Data are generally available from the following types of institutions except as noted in the table:

all public institutions, including community colleges, and all private institutions

NOTE: Information contained herein applies to the Research Office of New Jersey's Department of Higher Education. Detailed budgeting data are maintained by the Budget Office of DHE. Detailed operational financial-aid data are maintained by the Financial Aids Office of DHE. Data other than HEGIS data for community colleges are maintained by the Community College Office of DHE.

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State: New Jersey

INFORMATION STRUCTURE	DESCRIPTION OF DATA AVAILABLE			STATE-AGENCY FUNCTIONS AND DATA USES										
Major Area / Data Categories/Data Items	Level of Aggregation	Mechanical Status	Institutional Scope	Federal Reporting	Long-Range Planning	Mission/ Role/ Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
Institutional Information	IS	Mech	Public, Private, and Community Colleges					N/A						
Institutional Characteristics - *HEGIS required data: name, address, FICE code, county, U.S. congressional district, control, structure, accreditation, admissions requirements, undergraduate and graduate tuition/fees, room and board charges, and so forth (on annual NCES form 2300-1, Institutional Characteristics of Colleges and Universities)*				X										X
- Other data: tuition/fees separately for all levels (including lower division, upper division, and specific professional programs), ~~housing, and commuter information~~												X		X
Student Characteristics														
Demographic - Applications, admissions, enrollments for first-time students at all levels					X	X					X			X
- *HEGIS required head counts by sex, race, FT/PT, and student level, including unclassified (on annual NCES form 2300-2.3, Fall Enrollment in Institutions of Higher Education)*				X									X	X
- Other head counts by age by FT/PT by student level, including unclassified						X					X			X
Geographic Origin - *HEGIS required head counts by state (or foreign total) for all students by sex, by program level (bachelor's-degree credit, vocational technical, first professional, graduate, unclassified, and total), and for first-time freshmen and new transfer undergraduates (on NCES form 2300-2.8, Residence and Migration of College Students)*				X										
- Other data on head counts by FT/PT split for first-time entering students at freshman, graduate, and first-professional levels by: ~~In-district by county (for all levels)~~ In-state by county (for first-time freshmen) Out-of-state by state (for first-time freshmen) In-state versus out-of-state totals (for first-time graduates and professionals)					X						X			X
- Other data on head counts by FT/PT split for new undergraduate transfers by in-state by institution, by out-of-state ~~by state~~					X						X			X
Student Ability - Head counts of first-time entering undergraduates by high-school rank percentiles, ACT score ranges, and SAT score ranges, including institutional averages					X	X					X			
Financial Aid - Number of recipients (and their characteristics) and dollar amounts of aid available from institution and administered by institution N/A														

NOTE: DHE is state coordinator for HEGIS reporting.

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State: New Jersey

INFORMATION STRUCTURE	DESCRIPTION OF DATA AVAILABLE			STATE-AGENCY FUNCTIONS AND DATA USES										
Major Area / Data Categories/Data Items	Level of Aggregation	Mechanical Status	Institutional Scope	Federal Reporting	Long-Range Planning	Mission/Role/Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
Institutional Information (Continued)														
Student Programs and Discipline Information	IS	Mach	Publics, Privates, and Community Colleges					N/A						
Student Programs														
- Inventory of offerings by institution									X					
- Student Demand														
- *HEGIS required head counts by sex by FT/PT by student level (upper division, first-professional I and II, graduate I and II) for all major fields of study per HEGIS taxonomy (OE form 2300-2.9, Upper Division and Post Baccalaureate Enrollment by Degree Field, last required in 1976 has been discontinued)*				X	X	X			X					X
- Other head counts by FT/PT for other students (lower division and nondegree/diploma/certificate), by major field of study (including not designated)					X	X			X					X
- Costs by student level within student program	N/A													
- *HEGIS required numbers of degrees/diplomas/certificates conferred by sex and race by type of degree and by major field of study for July 1-June 30 (on annual NCES forms 2300-2.1 and 2.2, Degrees and Other Formal Awards Conferred)*				X	X	X			X					X
- Other information on number of students receiving a certificate/diploma for a program of less than one year by major field of study	N/A													
- Degrees conferred by age range of students summarized by type of degree	N/A													
- Characteristics of program completers summarized by type of degree	N/A													
- Noncompleters (and exit status) by type of degree and student program	N/A													
Discipline Information														
- Costs by course level within discipline for: Degree-related instruction; Requisite preparatory/remedial; Nondegree	N/A													
- Instructional activity: student-credit hours by course level within discipline	N/A													
- Instructional activity: student-contact hours and faculty-contact hours by course level within discipline for: Degree-related instruction; Requisite preparatory/remedial; Nondegree	N/A													

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State: New Jersey

INFORMATION STRUCTURE	DESCRIPTION OF DATA AVAILABLE			STATE-AGENCY FUNCTIONS AND DATA USES										
Major Area / Data Categories/Data Items	Level of Aggregation	Mechanical Status	Institutional Scope	Federal Reporting	Long-Range Planning	Mission/ Role/ Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
Institutional Information (Continued)														
Personnel	IS		Publics, Privates, and Community Colleges					N/A						
· *HEGIS required head counts by sex by FT/PT for manpower categories for all employees. (This information is reported on NCES form 2300-3 only when the form requires information on all employees instead of just full-time instructional faculty, as occurred in 1971-72, 1972-73, and 1976-77.)*		Mech		X	X								X	X
· *EEOC required data on head counts and salary distribution by sex by race by contract period by manpower categories for all employees. (Form EEO-6 was first required in 1975 as a biennial survey, and the same form was used in 1977 and 1979.)*		No	Publics and Community Colleges										X	
· *HEGIS required data on full-time instructional faculty by rank by sex by contract period, including numbers tenured and contributing services; and salary and benefit information. (As of 1977, NCES form 2300-3 incorporated information previously collected by AAUP on salaries for continuing faculty.)*		Mech	Publics, Privates, and Comm. Coll.	X	X									X
· Other data on instructional/research staff. N/A Number tenured, nontenured, and total for full-time by age range Number tenured, nontenured, and total for FT/PT by discipline Service months by PCS programs														
Finances *(HEGIS required data collected annually on form 2300-4, Financial Statistics of Institutions of Higher Education)*														
· *HEGIS required current fund revenues in total (unrestricted/restricted combined) by source for tuition/fees, government appropriations by level, sales and services, other sources, and independent operations*		Mech		X	X		X							
· Other data on unrestricted current fund revenues by source for government appropriations by level, for other sources, and for independent operations N/A														
· *HEGIS required unrestricted versus restricted current fund revenues by source for government grants and contracts by level; private gifts, grants and contracts; and endowment income*		Mech		X										
· Source/use matrix of current fund revenues		No												
· *HEGIS required current fund expenditures and mandatory transfers by function*		Mech		X	X									
· Balance-sheet information by fund groups N/A														
· *HEGIS required statement of changes in fund balances*		Mech		X	X									
· *HEGIS required details of endowment*		Mech		X	X									
· *HEGIS required physical-plant indebtedness in total*		Mech		X	X									
· Other physical-plant indebtedness for auxiliary enterprises, hospitals, and all other N/A														
· Retirement-fund contributions by a government source for an institution N/A														
· *HEGIS required debt outstanding, issued, and retired amounts in total for long-term and for short-term*		Mech		X										
· Other debt outstanding, issued, and retired amounts for long-term for auxiliary enterprises, hospitals, and all other N/A														
· *HEGIS required total interest paid from all funds*		Mech		X										
· Debt-service amounts and purchases of capital assets by source N/A														

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State: New Jersey

INFORMATION STRUCTURE	DESCRIPTION OF DATA AVAILABLE			STATE-AGENCY FUNCTIONS AND DATA USES										
Major Area / Data Categories/Data Items	Level of Aggregation	Mechanical Status	Institutional Scope	Federal Reporting	Long-Range Planning	Mission/Role/Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
Institutional Information (Continued)														
Facilities	IS		Publics, Privates, and Community Colleges					N/A						
- *HEGIS required assignable square feet by room-use categories and by building condition (Inventory of College and University Physical Facilities, OE form 2300-7, last required this type of facilities information in September 1974. NCES form 2300-7, with the same title, will be used in 1980-81 and will be limited to institutional information about physical facilities for the mobility impaired.)*		Mech		X						X				
- Station counts for class labs and classroom facilities; weekly student hours for classroom facilities		Mech			X					X				
- Estimated replacement cost by building condition type		Mech												

NOTE: The mechanized information system at New Jersey's Department of Higher Education is maintained by the Research Office, and the data identified in this table refer to that information that is mechanized by or available to this Office. In addition, the Research Office also has institutional information on computer activities and libraries, but this information is not mechanized. Information available at the Department of Higher Education in offices other than the Research Office includes the following:

- Detailed budgeting data (on public institutions only) are maintained in the Budget Office and are mechanized separately from the Research Office's management-information system.
- Detailed transactional financial-aid data (for both public and private institutions) are maintained by the Financial Aids Office and are mechanized separately from the Research Office's management-information system. (However, the Research Office eventually hopes to include aggregated financial-aid data in its system.)
- Community-college data other than that required for HEGIS reporting are maintained by the Community College Office.

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- Financial planning
- Relationship between the Departments of Education and Higher Education

• Strengthening the quality of higher education

- Development of improved procedures for assessment of program quality
- Strengthening faculty resources, student services, administrative services
  - Faculty
  - Administration
  - Student services
- Differentiation of the roles of the state colleges as a means of improving program quality
- Out-of-state institutions
- Encouragement of scholarship and research

• Programs for access and opportunity

- Providing better information for students
- Basic skills testing
- Evaluation of educational opportunity fund programs
- Reducing economic barriers to higher education
- Nontraditional education
  - Extending higher education to nontraditional populations
  - Evaluation and recognition of noncollegiate study

• Accountability

- Financial expenditures
  - Audit reports
  - Operating budgets
  - Program-cost information
  - Student financial aid
  - Program performance
  - Self-evaluation studies
  - Institutional master planning
  - Essential program measures
- Performance in relation to public-policy issues

Planning

There are two closely related activities on the agency agenda in this area. First is the call from Chancellor Hollander for the development of a new statewide plan with (1) precisely defined enrollment trends for both college age and nontraditional students; (2) current and projected economic and demographic data to help with institutional planning; (3) mission, role, and scope differentiation among institutions with particular emphases on liberal arts, occupational programs, and the mutual interest of individual

students and society as a whole regarding higher-education results. The Board has also called for the establishment of realistic goals concerning the resources that will be available to higher education in New Jersey and for carefully defined priorities regarding program emphasis and funding. Specific planning for this new statewide effort is now underway. The timetable for completion of the effort follows as table 15. The process selected is a broadly participative one with institutional planning and state-level planning (augmented by extensive use of task forces and planning committees) occurring concurrently.

In the other effort, Chancellor Hollander has called for an analysis of the system's performance against the objectives spelled out in the 1974 master plan. To assess progress against the objectives stated in that plan, New Jersey used data on state appropriations, enrollment trends and projections, student tuition and fees, and changes in age level for the New Jersey population. Much of the data necessary to measure performance against the 1974 plan is available in New Jersey HEGIS.

The New Jersey staff will review all data requirements flowing out of the renewed planning process and will emphasize identifying the data needed to establish and maintain accountability with respect to the social goals put forth in the plan.

Budgeting

The Department of Higher Education has two major responsibilities for review of institutional budgets. First, the department is responsible for receiving and consolidating all senior public-institution budget requests into a single request for submittal to the governor. The individual staff sections responsible for the several public and independent college and university sectors work together with the director of the Department of Higher Education Budget on this budget review and rely on a separately maintained data set for their analysis. The budget office has begun developing cost data in the seven-category Program Classification System. The objective is to better identify program-cost differences as a way of producing more objective and effective analysis of state-college budget requests and to better track appropriations from budget recommendations to expenditures.

The community-college appropriation is provided on a "per student" basis for all students enrolled, so no detailed budget analysis is involved in the process of requesting funds. There is interest among the community colleges in having a fund distribution process that better recognizes program-cost differences, so the community colleges have begun gathering the cost data provided by NCHEMS RRPM 1.6. Their initial objectives are to establish audited general expenditures per student as a basis for analyzing actual cost differences among programs and to develop a system of differential funding.

As the budget-review process gets further into the collection and analysis of cost data, it is reasonable to expect more rather than less cooperation between the budgetary data-collection effort and the New Jersey information system.

Table 15

Timetable for Development of New Jersey's Statewide Plan for Postsecondary Education

1978	February	Draft Call presented to the Board of Higher Education (BHE) for discussion and sent to institutions, councils, and constituent groups for comment (if BHE was in general accord). Institutions that had not already done so organized planning committees.
	April 15	Written responses to Draft Call received and evaluated by the Department of Higher Education (DHE).
	April 21	Second draft of call distributed to BHE and subsequently to broad mailing list.
	Third week of May	BHE Planning Committee formed. Public hearings conducted on the Draft Call.
	June	Final Call presented to BHE for approval and then circulated.
	July	Task forces established, and issues assigned to councils, task forces, and committees.
		Formats for institutional plans worked out within sectors.
	September	Task forces, councils, and committees commenced intensive activity.
1979	March	Councils, task forces, and committees submitted recommendations to BHE Planning Committee.
	May	First draft of Statewide Plan circulated.
	July	Written responses to first draft of Statewide Plan received and evaluated by DHE.
	September	Second draft of Plan distributed to BHE and subsequently to broad mailing list.
	October	Public hearings on second-draft Plan.
	December	Final draft of Plan circulated.
		Summary Mission Statements submitted by institutions for review by chancellor.
1980	March	Formal consideration of Statewide Plan by BHE.
	April	Comprehensive Institutional Plans submitted to DHE for approval.

Program Review

As with budgetary-review responsibilities, responsibility for program review is assigned to the Division of Academic Affairs and further assigned to the appropriate sector staff (Office of University and Professional Schools, Office of State Colleges, Office of Community Colleges, Office of Independent Colleges, or the Office of Health Professions). The Department has been involved in approval of new programs since it was established in 1966. The reviews are ad hoc in nature and carry their own special data collection as part of the request for program approval. To date, none of the data involved in new-program-approval request format (other than those also included in federal HEGIS) has been added to the New Jersey HEGIS. The Division of Health Professions Education exercises similar new-program-approval responsibilities to those of the Division of Academic Affairs and will also be responsible for review of all existing programs in the health field.

Efforts are just now under way, spurred by Chancellor Hollander's issue paper, to investigate procedures for reviewing existing programs. The expectation is that during the first year or two of existing program review, data required and not already in the New Jersey HEGIS will be collected on a special request basis. Once the new process is evaluated (and important state-level data to be a part of that process are identified), a decision will be made regarding additions or changes to the New Jersey HEGIS.

Student Financial Aid

The Department of Higher Education coordinates several state and federal programs of financial assistance to students. The Student Financial Aid Office, a unit of the Department, has its own data-processing management and transactional data base. The staff is attempting to identify what kind of data would help them plan required levels of aid and to analyze how well the needs of potential students are being met. There are no active plans to integrate the student-financial-aid data base and the New Jersey HEGIS. If the planning function within the student-financial-aid area becomes more critical, it is then possible that some of the data maintained in that system will also be maintained in the New Jersey HEGIS to support such planning considerations as level of unmet need and characteristics of recipients.

Facilities Review

New Jersey collects facilities data on a state-level basis, relying mainly on the federal HEGIS data supplemental as necessary to support analysis of special issues. Special attention is currently being given to maintenance requirements, facilities necessary to complete a few campuses, and replacement costs.

Research

The statutory authority for the Department emphasizes research and data collection. Responsibility for carrying out the systemwide research mandate

and for acting as the source for information on postsecondary education rests with the research function within the Department. Information-system developmental efforts are coordinated from that office, and responsibility for implementing the social goal-accountability portion of the Call[4] (the most data-intensive of the several portions) is also assigned there. Until the specific nature of the research agenda needed to implement the Chancellor's agenda is defined, specific changes needed in New Jersey HEGIS cannot be identified. But the expected practice in New Jersey will be to rely on New Jersey HEGIS data, modifying research designs where possible, rather than to select designs that would require major new additions to what is available in New Jersey HEGIS.

Developmental Schedule and Resources

As mentioned elsewhere in the project documents, precise cost guidelines for estimating the time and resource requirements for an information-system-development effort have not been feasible to develop. Instead, the project and pilot-test-state staff have developed as complete a picture as possible of the time and resource environment within which each agency has been working.

Table 16 describes the developmental history in New Jersey; table 17 describes the identifiable costs associated with the effort. In using this information as a guide to estimate the schedule and budget of another state, the user must carefully consider the scope of the responsibilities of the Department of Higher Education and the practice of the Department to maintain separate data bases to support its budget analysis and student-financial-aid program responsibilities.

Conclusion

The New Jersey Department of Higher Education entered the State-Level Information Base project with the objective of improving the organization and accessibility of the data already being collected. As a result of the pilot-test experience, the system is now defined and the file structure established. Mechanization of the data system has been achieved and a regular report schedule established.

In addition to achieving its information-system process objectives, the Office of Research has established an information handbook published annually that contains generally useful data related to current planning issues in New Jersey.

The renewal emphasis placed on statewide planning is serving to further integrate staff planning and analysis activities. The decision to directly involve the Office of Research in one of the substantive planning issues (accountability for social goals) and in a coordinative capacity for all data requirements associated with the plan suggests a continuing, working relationship between data users and data analysts in the Department.

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4. Call by the Board of Higher Education for the preparation of the 1980 New Jersey Higher Education Statewide Plan, New Jersey State Department of Higher Education, June 16, 1978.

Table 16

Chronological Summary of Major Activities Related to the State-Level Information System in New Jersey

1967	New Jersey Department of Higher Education (DHE) was established. (The Department was preceded by the Office of Higher Education of the State Department of Education.)
	DHE took over responsibility from the Department of Education for coordinating the collection of HEGIS information from the institutions.
1972	New Jersey began developing a state master plan for postsecondary education (which was the primary stimulus for establishing data needs related to higher education).
1973	DHE established a research area with responsibility for data collection.
1973–74	DHE began using special New Jersey forms for collection of those data needed in addition to HEGIS.
1974	DHE approved the State Master Plan. (Phase I--Goals; Phase II--Sector Responsibilities and Mission; Phase III--Plans for Critical Program Fields.)
1975	New Jersey became a pilot-test state in the State-Level Information Base project and began to develop plans for a larger and more integrated data resource with full computer support.
1976–77	DHE set up annual workshops to go over new data-collection plans with institutions.
	DHE began mechanizing the state-level information system.
1977–78	DHE began coordination activities with the institutions to develop a revised State Master Plan.

Table 17

Cost of the State-Level Information System in New Jersey 1974-75 through 1978-79

New Jersey Department of Higher Education (DHE)

Fiscal Year	Activity	Total Cost (c)	
1974-75	DHE continued routine data-collection activities.		
	Personnel involved in data collection/editing analysis (salary costs).	$ 25,000	
	Data-processing costs (keypunching of selected data and simplified retrieval programs).	6,000	
	Total		$ 31,000
1975-76	New Jersey became a pilot-test state in the State-Level Information Base project.		
	Personnel--Number of DHE staff involved in data collection/analysis was increased to begin development of a state-level information system. (a)	$ 36,000	
	Data-processing costs continued at same level.	6,000	
	Total		$ 42,000
1976-77	DHE began intensified activities in mechanized MIS development.		
	DHE personnel involved in the information system.	$ 38,000	
	Contract began with New Jersey Educational Communications Network for data-processing development. (b)	35,000	
	Total		$ 73,000
1977-78	DHE continued mechanized development.		
	DHE personnel involved in the information system.	$ 40,000	
	Contract continued with ECN for data-processing development.	55,000	
	Total		$ 95,000
1978-79	DHE will continue mechanized development.		
	DHE personnel involved in the information system.	$ 42,000	
	Contract will continue with ECN for data-processing development and operations.	30,000	
	Total		$ 72,000

4/25/78

(a) DHE personnel involved in MIS development includes a HEGIS coordinator at 100%, a statistical clerk at 100%, Director of Research at 20%, consultant to MIS project at 20%, a systems analyst who serves as a link to the data-processing consultants at 20%, plus some clerks involved in general administration of surveys and editing of data on returned forms.

(b) Contract with the New Jersey Educational Computer Network (ECN) began with the services of one part-time person in 1976-77, then expanded to one full-time person from 1977-78 on. The contract covers keypunching, building data files, systems analysis, programming, systems service and operations. ECN is using the RAMIS data management and reporting system and computer facilities at Rutgers University.

(c) Costs attributed to developmental, as opposed to operational, activities are estimated to be $120,000 for the three years from 1976-77 through 1978-79.

VII.

NEW YORK STATE EDUCATION DEPARTMENT

Background and Functions

The state-level higher-education governance structure in New York is unique among the pilot-test states. The Board of Regents of the University of the State of New York, established by the legislature in 1784, coordinates and supervises all levels of education in New York. The term university as used in the title is extremely broad and includes all elementary, secondary, and postsecondary-education institutions incorporated in the state, as well as libraries, museums, and other institutions, schools, organizations, and agencies for education that have been admitted to or incorporated by the university. (See figure 19 for the organizational chart of the university.) The university is empowered to charter, register, and inspect educational institutions; to license and oversee the professional conduct of practitioners in nearly all the professions; to certify teachers and libraries; and to apportion certain state financial assistance to private educational institutions. The Board of Regents also serves as the State Postsecondary Education Commission and the State Board of Vocational Education. Its staff activities are conducted by the State Education Department (SED), an organization described later.

Education in New York is a vast and complex enterprise. Postsecondary education alone is a $4 billion a year activity, employing over 2 percent of the state's total work force and providing services to more than two million students. More than 700 institutions and agencies provide postsecondary programs registered or approved through the SED. (See figure 20 for a summary of the present structure of postsecondary education in New York.)

Undergraduate enrollments have grown from 325,000 in 1965 to 807,000 in 1975. Graduate enrollments have grown from 90,000 to 190,000 in the same

Figure 19

Organizational Chart of the University of the State of New York
As of Fall 1978

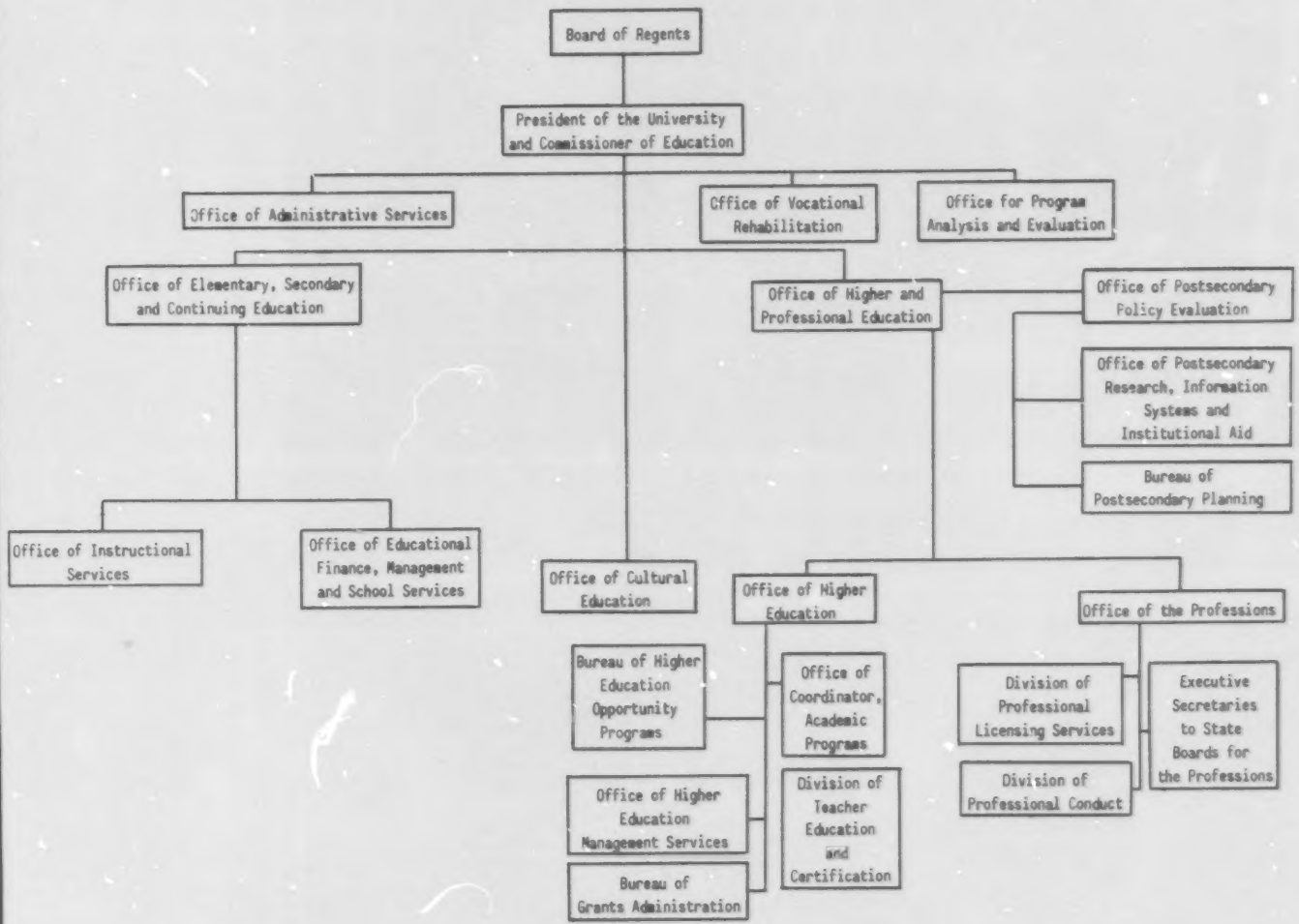
Board of Regents
President of the University and Commissioner of Education
Office of Administrative Services
Office of Vocational Rehabilitation
Office for Program Analysis and Evaluation
Office of Elementary, Secondary and Continuing Education
Office of Higher and Professional Education
Office of Postsecondary Policy Evaluation
Office of Postsecondary Research, Information Systems and Institutional Aid
Bureau of Postsecondary Planning
Office of Instructional Services
Office of Educational Finance, Management and School Services
Office of Cultural Education
Office of Higher Education
Office of the Professions
Bureau of Higher Education Opportunity Programs
Office of Coordinator, Academic Programs
Division of Professional Licensing Services
Executive Secretaries to State Boards for the Professions
Office of Higher Education Management Services
Division of Teacher Education and Certification
Division of Professional Conduct
Bureau of Grants Administration

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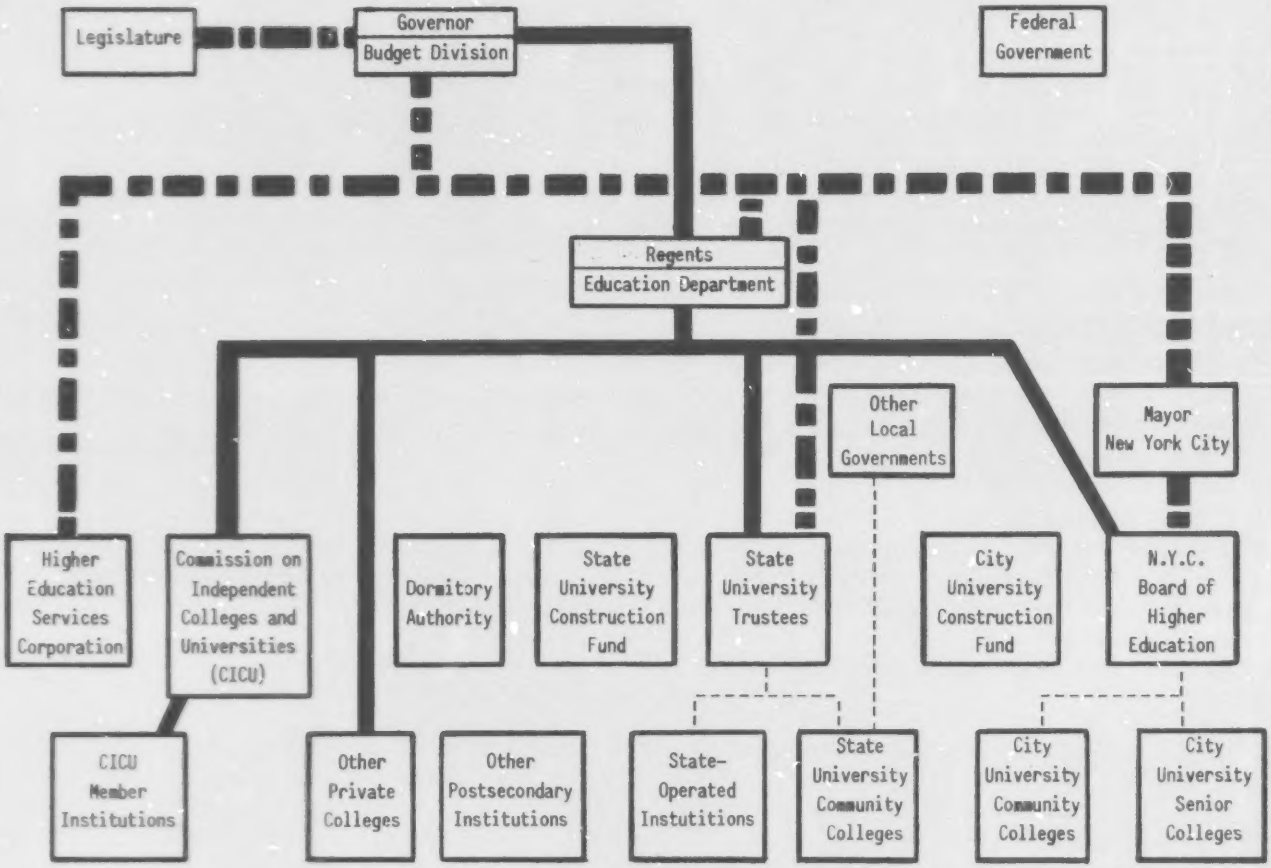
Figure 20

Structure of Postsecondary Education in New York
As of June 1976



Source: The Regents Statewide Plan for the Development of Postsecondary Education: 1976 (Albany: N.Y.: The University of the State of New York and the State Education Department, 1976), p. 74.

------ Governance (includes planning, budgeting and funding)
Planning
Budgeting

period. Public-sector enrollments doubled during the 10-year period, while independent college and university enrollments were growing slightly less than 50 percent.

New York has 695 postsecondary-education institutions, 246 of which are degree granting. One hundred twenty of the 246 are private colleges and universities. Of the 85 public institutions, 64 are governed by the State University of New York (including 36 community and agriculture/technical colleges), and 19 are governed by the City University of New York (including 8 community colleges).

New York has a strong commitment to institutional autonomy. Institutional governance, including responsibility for submitting budget requests to the governor and legislature, is the responsibility of the State University of New York (SUNY) and the City University of New York (CUNY) governing boards. Independent higher education is represented at the state level by the Commission on Independent Colleges and Universities.

The State Education Department provides the staff support for the Regents, and the Office of Higher and Professional Education carries out all Board responsibilities related to the operations of institutions of postsecondary education.

The major responsibilities of the State Education Department include planning and coordination, exercised through a regular master-planning effort; approval of degrees; and approval of credit-bearing programs for all sectors and levels of postsecondary education, particularly as they involve changes in institutional mission, in particular areas of study, levels of study, or in the operation of branch campuses). SED does not have budgetary-approval responsibility. The public institutional segments (State University of New York and City University of New York) have traditionally been responsible for preparing and defending their own budget requests and recommendations.

SED administers significant aid programs for independent institutions. The major program is the Bundy Aid program, which allocates money directly to institutions based on degrees awarded. A separate operating agency, the New York State Higher Education Services Corporation, administers the other major state-funded student-assistance program, the Tuition Assistance Program (TAP). Students in both public and independent institutions are eligible for assistance through TAP.

In summary, the Office of Higher and Professional Education of SED is active in program and degree approval and review, produces a statewide plan for the development of postsecondary education every four years, and plays an active role in the allocation of state funds to independent higher-education institutions.

New York has a long history of state-level coordination of public higher education. The public and independent sectors grew up under the state-level coordinating umbrella and are quite accustomed to requirements for state-level approval of degrees and programs and to requirements to report data to the state level. This long history has led to thoroughly routinized processes for

state-level appr[illegible]als and data collection. The similarly long history of state-level data u[illegible]se has led to the development of relatively sophisticated analytical appro[illegible]hes and tools.

Another characteristic that sets New York apart from other pilot-test states is the selective nature of postsecondary-education responsibilities at the state level. The State Education Department has only a limited role in reviewing budget requests for public higher education. The SUNY and CUNY systems submit budgets directly to the governor. SED comments on sector budgets, with particular reference to the consistency of budget requests to statewide plan recommendations. But all responsibility for review and recommendations to the legislature rests with the executive budget office. And all data needed to support that review are provided by SUNY and CUNY.

SED does maintain a master plan (updated every four years), but the planning process is tied closely to individual institutional master plans for both public and private institutions. The periodic updating of the state-level master plan emphasizes broad demographic trends, enrollment performance and patterns, and SED policy, particularly in relation to the status of Board approval of programs and the degree of consistency between the Regents' Statewide Plan and the institutional and sector master plans.

The program-approval responsibilities of the Board are served primarily by data presented in applications for approval of new programs or in the documents that support the SED accreditation process. Recent activities in the area of review of existing doctoral programs may lead to continuing data collection as a way of supporting evaluation of existing programs, but to date, even this major function of the Board has created little demand for regular data collection at the state level. One regular data-collection effort that has developed is the Inventory of Registered Degree and Certificate Programs, which supports a variety of staff-review processes, including program review, teacher certification, licensing in some areas, and the special doctoral-program-review project.

Approach to Information Systems

There is no single source for the broad range of postsecondary-education data that are needed and used by SED. Each year the basic data required from institutions are identified by the SED staff. Those requirements are reviewed by the Research and Information Systems Advisory Committee, which includes representatives of the institutions, central offices, legislative staff, and the governor's budget office. After the required data have been determined, the Bureau of Statistical Services (a separate office within SED) prepares the survey instruments and collects and compiles the data. The SED data package supplements HEGIS data. Both are distributed in June to the institutions. After data are received in the state office, the most important data items are loaded into the Higher Education Data System (HEDS), a computerized system emphasizing fast access. The remaining items are kept in hard-copy files for special studies. The Bureau of Statistical Services performs the same functions for elementary, secondary, and vocational institutions. Budgeting data are maintained by SUNY and CUNY.

The number of SED offices involved in collection of data causes no severe hardships, since the several data requirements are all processed through the same review committee and collection office. As the Office of Postsecondary Research, Information Systems and Institutional Aid (OPRISIA) develops the Higher Education Data System, access by all SED-using offices will improve, and further coordinative results can be expected. The Inventory of Registered Programs and data on migration of resident students are the next planned additions to HEDS.

In addition to its commitment to compiling and disseminating information, SED is building capabilities in the areas of analytical studies and quantitative models. Models for projecting enrollments and studying state-level financing strategies, as well as trend analyses and ad hoc studies, are currently being used or developed by OPRISIA. A State Financial Planning Model is being used as an aid to policymakers in evaluating the impact of policy alternatives over a five-to-seven-year period. An enrollment model is being tested to determine its ability to recognize enrollment-determining factors other than the college-going rates of high-school seniors.

It is important to note the SED emphasis on information services to institutions and to other state and SED offices. This spirit should accelerate progress towards an integrated state-level data system, carefully tuned to the officially established responsibilities of SED. The centralized HEDS should respond to changes in SED responsibilities over time, even anticipating some of those changes through regular analysis of trend data.

It is a general commitment of SED and an objective of New York's participation in the project to maintain only those data needed to serve known state-level SED functions and to work at a level of aggregation appropriate to state-level analyses. The data-reporting burden on institutions therefore is small in a marginal sense (that is, the data set changes little from year to year, with no loss of state-level analytical effectiveness).

OPRISIA, the liaison office for the State-Level Information Base project, provides information, analysis, and research support for all SED functions, with particular emphasis on analysis of enrollment shifts among New York public and independent postsecondary-education institutions. OPRISIA maintains HEDS, the Inventory of Registered Programs, and other state-level data to support its research and analysis responsibilities.

The Higher Education Data System contains information about those postsecondary-education institutions in the state that award degrees and certificates. The data are taken from reports provided to the Department by institutions through the Department's Higher Education General Information Survey and the State Education Department Higher Education Data System forms. The System offers access to basic data on postsecondary institutions on a timely basis. The software allows retrieval of data at a number of levels of detail, accommodates a variety of mathematical manipulations, and provides considerable flexibility in output formats.

HEDS presently contains 146 data elements and subtotals in 12 major categories:

1. Institutional Characteristics
2. Undergraduate Admissions/Applications
3. Graduate Admissions/Applications
4. Undergraduate Enrollment
5. Graduate Enrollment
6. Basic Student Charges
7. Degrees and Formal Awards Conferred
8. Faculty/Staff
9. Full-Time Faculty, Salaries and Tenure
10. Institutional Finance
11. Physical Facilities
12. Residence and Migration

The selection of the data categories as well as the data elements is based on their importance and usefulness for research and planning purposes. The size of the system has purposely been kept small. The system can be expanded or modified in the future as problems arise requiring resolution or change and as capabilities for analysis increase.

Current plans are to enter at least six consecutive years of data for all major categories except institutional characteristics and physical facilities. The institutional-characteristics data will be maintained only for the current year. With the exception of degrees awarded and financial data, all data categories represent the fall academic term for the year indicated. The financial data cover a fiscal year and are coded by the year beginning the fiscal period; for example, the data stored as "Institutional Finance 1973" are for fiscal 1973-74. The degree data, which cover an entire academic year from July 1 to June 30, are coded by the year ending this period; therefore the category "Degrees Conferred - 1973" includes data for July 1, 1972, to June 30, 1973.

Data Set

During the developmental and testing stage of the State-Level Information Base project, each pilot-test state was asked to indicate the specific data included in its information system. Each state did so, based upon the comparison of its information system as of May 1978 to the 1977 Field Review edition (Technical Report 85) of the State-Level Inforamtion Base project. Each state

also identified other major types of data that were included in its information system at that time but were not included in the preliminary version of the State-Level Information Base project's proposed data.

The project's final data framework, contained in the document entitled Postsecondary-Education Information Systems at the State Level: Selection of Data to Address Planning Issues, is not the same as the preliminary data set. The final framework was designed to be more flexible and adaptable than that contained in Technical Report 85. Also, each state has made minor changes in its data set since May 1978. Still, the earlier comparison tables provide a reasonable current indication of how each pilot-test state's data set compares to the guidance offered by the State-Level Information Base project. Table 18 is the comparison table for the State Education Department.

Agenda

Planning

Statewide planning is the primary responsibility of the Regents and the SED. The responsibility is exercised through development of the Statewide Plan, the biennial Progress Report, and periodic amendments (usually in the form of new-program or degree approvals) to the Statewide Plan. Each of the sectors (SUNY, CUNY, independent institutions represented by CICU, other degree-granting postsecondary-education institutions, and 26 business and trade schools) prepares master plans for inclusion in the Statewide Plan. Upon approval by the Board of Regents, the sector plans become part of the Statewide Plan that is then sent to the governor for approval and to the legislature for information.

The Statewide Plan contains enrollment goals for each of the sectors of postsecondary education for the coming four years. These goals guide the executive and legislative funding purposes, though responsibility for making specific funding recommendations to the legislature rests with the governor's budget office. Among the factors addressed by SED enrollment analyses, projections, and recommendations are population growth and intrastate shifts, high-school enrollment and graduation trends, the postsecondary attendance rate, access patterns by geographic area, and participation by women, minorities, and according to age group. SED develops historical data and projections for use by the public and independent institutions and comments on the sector and institutional master plans as they are submitted. The Statewide Plan effort requires state-level data concerning the enrollment issues and patterns described above, some background data on facilities and staff, and an inventory of institutions, programs, and degrees.

As part of the service-oriented planning process, SED plans a series of regional planning analyses designed to provide statistical comparisons among institutions in a predetermined set of regions. The effort will present existing data in new formats to support the regional summaries. Current demographic and economic trend data will be important to the success of the regional summaries.

TABLE 18

POSTSECONDARY-EDUCATION INFORMATION SYSTEMS AT THE STATE LEVEL
INFORMATION STRUCTURE AND FUNCTIONAL USES OF DATA
Detail by Pilot-Test States

As of May 1978

State: New York
Agency: State Education Department (SED)

INFORMATION STRUCTURE		DESCRIPTION OF DATA AVAILABLE (a)			STATE-AGENCY FUNCTIONS AND DATA USES										
Major Area / Data Categories/Data Items		Level of Aggregation	Mechanical Status	Institutional Scope	Federal Reporting	Long-Range Planning	Mission/Role/Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
State Information															
Population Characteristics of State		N/A		N/A										N/A	
· Census in total, by county, by population density			Aces			X						X			X
· Distribution of family income	N/A														
· Education attainment by county for levels within elementary, secondary, college, and vocational education	N/A														
· Elementary/secondary enrollments by public/private by locality			Aces												
· High-school graduates by sex by race by locality			Aces									X			
· High-school-equivalency recipients by sex for state			Aces												
Occupancy Outlook of State															
· Employment summary by industry type and by occupational classification for state	N/A														
· Job applicants/openings by occupational classification for state			Aces			X			X	X					X
Finances of State															
· State and local revenues			Aces					X							
· State and local appropriations/expenditures			Aces					X							
· Student financial aid available from state through state agency, including number of recipients (and their characteristics) and dollar amounts of aid			Aces					X							
National Information															
Occupation Outlook of Nation															
· Employment summary by industry type and by occupational classification for nation	N/A														
· Job applicants/openings by occupational classification for nation	N/A														
Finances															
· Student financial aid available from federal government directly to students	N/A														

NOTE: N/A indicates not applicable.

(a) Description of Data Available for State Agency's Use:
Level of Aggregation within Agency
ID: Institutional Detail (such as individual student data)
IS: Institutional Summary (totals by institutions only)
SS: State Summary (totals for all institutions or groups of institutions only)

Mechanized Status within Agency:
Mech: Data are, or will be, mechanized
No: No plans to mechanize hard copy
Aces: Data accessible outside agency but not maintained at agency

Institutional Scope:
Data are generally available from the following types of institutions except as noted in the table:

all institutions awarding degrees

NOTE: HEGIS data are on forms at an institutional summary level. Aggregated data are mechanized and include detail by student or degree level but not by discipline.

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State: New York

INFORMATION STRUCTURE		DESCRIPTION OF DATA AVAILABLE			STATE-AGENCY FUNCTIONS AND DATA USES										
Major Area / Data Categories/Data Items		Level of Aggregation	Mechanical Status	Institutional Scope	Federal Reporting	Long-Range Planning	Mission/Role/Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published information
Institutional Information															
Institutional Characteristics - *HEGIS required data: name, address, FICE code, county, U.S. congressional district, control, structure, accreditation, admissions requirements, undergraduate and graduate tuition/fees, room and board charges, and so forth (on annual NCES form 2300-1, Institutional Characteristics of Colleges and Universities)*			Partly Mech	All Institutions	X									N/A	
- Other data: tuition/fees separately for all levels (including lower division, upper division, and specific professional programs), housing, and commuter information	N/A														
Student Characteristics															
Demographic - Applications, admissions, enrollments for first-time students at all levels			Mech									X			
- *HEGIS required head counts by sex, race, FT/PT, and student level, including unclassified (on annual NCES form 2300-2.3, Fall Enrollment in Institutions of Higher Education)*			Mech		X							X			
- Other head counts by age by FT/PT by student level, including unclassified			Mech									X			
Geographic Origin - *HEGIS required head counts by state (or foreign total) for all students by sex, by program level (bachelor's-degree credit, vocational technical, first professional, graduate, unclassified, and total), and for first-time freshmen and new transfer undergraduates (on NCES form 2300-2.8, Residence and Migration of College Students)*			Mech		X							X			
- Other data on head counts by FT/PT split for first-time entering students at freshman, graduate, and first-professional levels by: ~~- In district by county (for all levels)~~ In-state by county (for first-time freshmen) ~~- Out-of-state by state (for first-time freshmen)~~ In-state versus out-of-state totals (for first-time graduates and professionals)			Mech									X			
- Other data on head counts by FT/PT split for new undergraduate transfers by in-state by institution, by out-of-state by state	N/A														
Student Ability - Head counts of first-time entering undergraduates by high-school rank percentiles, ACT score ranges, and SAT score ranges, including institutional averages	N/A														
Financial Aid - Number of recipients (and their characteristics) and dollar amounts of aid available from institution and administered by institution			Mech	Indep. only				X					X		

NOTE: SED is state coordinator for HEGIS reporting

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State: New York

INFORMATION STRUCTURE		DESCRIPTION OF DATA AVAILABLE			STATE AGENCY FUNCTIONS AND DATA USES										
Major Area / Data Categories/Data Items		Level of Aggregation	Mechanical Status	Institutional Scope	Federal Reporting	Long-Range Planning	Mission/Role/Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
Institutional Information (Continued)															
Student Programs and Discipline Information				All Institutions										N/A	
Student Programs			Mech as separate file				X		X	X					
- Inventory of offerings by institution															
- Student Demand															
- *HEGIS required head counts by sex by FT/PT by student level (upper division, first-professional I and II, graduate I and II) for all major fields of study per HEGIS taxonomy (OE form 2300-2.9, Upper Division and Post Baccalaureate Enrollment by Degree Field, last required in 1976 has been discontinued)*			Totals mech by degree field		X			X	X	X		X			
- Other head counts by FT/PT for other students (lower division and nondegree/diploma/certificate), by major field of study (including not designated)			Mech					X	X	X					
- Costs by student level within student program	N/A														
- *HEGIS required numbers of degrees/diplomas/certificates conferred by sex and race by type of degree and by major field of study for July 1-June 30 (on annual NCES forms 2300-2.1 and 2.2, Degrees and Other Formal Awards Conferred)*			Totals mech by degree field		X			X	X	X					
- Other information on number of students receiving a certificate/diploma for a program of less than one year by major field of study	N/A														
- Degrees conferred by age range of students summarized by type of degree	N/A														
- Characteristics of program completers summarized by type of degree	N/A														
- Noncompleters (and exit status) by type of degree and student program	N/A														
Discipline Information															
- Costs by course level within discipline for: Degree-related instruction; Requisite preparatory/remedial; Nondegree	N/A														
- Instructional activity: student-credit hours by course level within discipline	N/A														
- Instructional activity: student-contact hours and faculty-contact hours by course level within discipline for: Degree-related instruction; Requisite preparatory/remedial; Nondegree	N/A														

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State: New York

INFORMATION STRUCTURE		DESCRIPTION OF DATA AVAILABLE			STATE-AGENCY FUNCTIONS AND DATA USES										
Major Area / Data Categories/Data Items		Level of Aggregation	Mechanical Status	Institutional Scope	Federal Reporting	Long-Range Planning	Mission/ Role/ Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
Institutional Information (Continued)															
Personnel				All Institutions										N/A	
- *HEGIS required head counts by sex by FT/PT for manpower categories for all employees. (This information is reported on NCES form 2300-3 only when the form requires information on all employees instead of just full-time instructional faculty, as occurred in 1971-72, 1972-73, and 1976-77.)*			Mech		X			X							
- *EEOC required data on head counts and salary distribution by sex by race by contract period by manpower categories for all employees. (Form EEO-6 was first required in 1975 as a biennial survey, and the same form was used in 1977 and 1979.)*	(b) N/A														
- *HEGIS required data on full-time instructional faculty by rank by sex by contract period, including numbers tenured and contributing services; and salary and benefit information. (As of 1977, NCES form 2300-3 incorporated information previously collected by AAUP on salaries for continuing faculty.)*			No		X			X							
- Other data on instructional/research staff: Number tenured, nontenured, and total for full-time by age range; Number tenured, nontenured, and total for FT/PT by discipline; Service months by PCS programs	N/A														
Finances *(HEGIS required data collected annually on form 2300-4, Financial Statistics of Institutions of Higher Education)*	(c)														
- *HEGIS required current fund revenues in total (unrestricted/restricted combined) by source for tuition/fees, government appropriations by level, sales and services, other sources, and independent operations*			Mech		X			X							
- Other data on unrestricted current fund revenues by source for government appropriations by level, for other sources, and for independent operations	N/A														
- *HEGIS required unrestricted versus restricted current fund revenues by source for government grants and contracts by level; private gifts, grants and contracts, and endowment income*			Mech		X			X							
- Source/use matrix of current fund revenues	N/A														
- *HEGIS required current fund expenditures and mandatory transfers by function*			Mech		X			X							
- Balance-sheet information by fund groups	N/A														
- *HEGIS required statement of changes in fund balances*			Mech		X			X							
- *HEGIS required details of endowment*			Mech		X			X							
- *HEGIS required physical-plant indebtedness in total*			Mech		X			X							
- Other physical-plant indebtedness for auxiliary enterprises, hospitals, and all other	N/A														
- Retirement-fund contributions by a government source for an institution	N/A														
- *HEGIS required debt outstanding, issued, and retired amounts in total for long-term and for short-term*			Mech		X			X							
- Other debt outstanding, issued, and retired amounts for long-term for auxiliary enterprises, hospitals, and all other	N/A														
- *HEGIS required total interest paid from all funds*			Mech		X										
- Debt-service amounts and purchases of capital assets by source			Mech					X							

(b) SED does not get copies of Form EEO-6 filled out by institutions.

(c) Although SED has no formal budgeting responsibilities, it does analyze budgets, financing plans, and so forth.

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State: New York

INFORMATION STRUCTURE		DESCRIPTION OF DATA AVAILABLE			STATE-AGENCY FUNCTIONS AND DATA USES										
Major Area Data Categories/Data Items		Level of Aggregation	Mechanical Status	Institutional Scope	Federal Reporting	Long-Range Planning	Mission/ Role/ Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
Institutional Information (Continued)															
Facilities - *HEGIS required assignable square feet by room-use categories and by building condition (Inventory of College and University Physical Facilities, OE form 2300-7, last required this type of facilities information in September 1974. NCES form 2300-7, with the same title, will be used in 1980-81 and will be limited to institutional information about physical facilities for the mobility impaired.)*			No	All Institutions	X						X			N/A	
- Station counts for class labs and classroom facilities; weekly student hours for classroom facilities	N/A														
- Estimated replacement cost by building condition type	N/A														

NOTE: In addition to the data already identified in this table, New York's State Education Department has more detailed financial-aid data (due to its administration of the Bundy Program) and a great deal of nonmechanized information to be used in its capacity as the state accrediting agency. Other data collected include:

Not Mechanized
- Directory of off-campus instructional centers
- Cohort survival report
- Certification of earned degrees conferred
- Estimates of earned degrees to be conferred
- Information required for special aid to medical and dental schools
- More detailed information on student charges
- Summer-session enrollment data

Mechanized
- Financial indicators

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Another area of planning that will receive increased attention is the ability of New York institutions, both public and private, to survive projected downtrends in enrollment in the next 10 years. As New York develops its plans for monitoring institutional financial health, it will be necessary to establish statistical measures of access, diversity, and financial status within institutions. SED intends to conduct these analyses with little or no additional data collection from institutions.

Budgeting

SED plays only a limited role in the budgeting process for postsecondary education. The budgets of independent higher-education institutions are not reviewed at all. Public-sector (SUNY and CUNY) budget requests have historically been made available to SED only after they are in the hands of the governor's budget division.

The size and distribution of the CUNY operating budget continues to be a decision of the City of New York, even though appropriations proposed by the governor and authorized by the legislature are a major CUNY source of revenue. The sponsoring local governments (usually counties) determine the budgets for the community colleges, though community-college budgets are subject to approval by the SUNY trustees, within state tuition-appropriations guidelines. Decisions on SUNY colleges and university budgets rest with the governor and the legislature.

The budgeting process also includes the student-financial-aid programs and administrative operations of the New York State Higher Education Services Corporation. The Corporation was established, through legislation in 1974, for the purposes of centralizing administration of the state's student-financial-aid programs (Tuition Assistance Program, Regents scholarships and fellowships, and state student loans) and coordinating such programs with those of other government sectors, particularly at the federal level. In recent years, student-financial-aid programs at both the state and federal levels have grown significantly in numbers and in level of expenditure. There is increasing recognition of the need to simplify and unify the diverse application and payment process in order to facilitate student planning for financing the cost of attending postsecondary institutions.

The Board of Regents has repeatedly expressed concern about the lack of an overall budget-review system that clearly defines programmatic goals for postsecondary education and relates them to the academic-planning purposes. So long as program review is the responsibility of the Regents and budget review is the exclusive responsibility of the governor's office, an integrated budget-review system can develop only by a joint commitment by both agencies. As the Regents view it, their role in the budget-review process would have the following objectives:

a. Determine consistency of annual budget requests with the Regents' Statewide Plan

b. Identify priority areas for funding

c. Describe the financial needs of all sectors of postsecondary education and propose an equitable allocation of resources to meet these needs

d. Recommend a distribution of resources intended to provide maximum educational opportunities at a minimum cost to the state

SED staff has taken initial steps to implement the objectives. Annual analyses of historical revenue and expenditure patterns and trends that generally influence resource allocations are provided by SED and other interested state-agency staff people. The State Financial Planning Model (see Financing Policies in this section) allows analysis of the impact of each of the following components on the others: tuition levels, cost to students, student aid, enrollment levels, institutional expenditures, capital outlays, and institutional revenues.

The Commission on Independent Colleges and Universities (CICU) voluntarily submits its legislative recommendations to the Regents for analysis and review. The Regents assign priorities to the CICU recommendations and recommend approval or disapproval.

Finally, SED has encouraged institutions to adopt the Information Exchange Procedures (IEP). So far, the IEP system (which includes a set of definitions and procedures for handling data on faculty, personnel, students, and accounts, and which can produce program unit costs) has not been implemented on enough campuses to significantly influence the usefulness of cost comparisons among institutions.

As long as the budget-review responsibilities of the Board of Regents remain limited, the SED data set will not contain the cost, workload, and other financial data usually associated with state-level budgetary responsibilities.

Program Review

SED is extensively involved in evaluating institutional program quality and in approving new programs and degrees, emphasizing institutional self-assessment as the cornerstone for its evaluative approach. SED implements its program responsibilities through three activities: chartering and accreditation of public and private New York institutions of higher education, annual registration of individual degree and certificate programs for public and private institutions, and a Board-initiated evaluation project.

In spite of the scope of SED review responsibilities, no state-level data are maintained to support them. The Inventory of Registered Degree and Certificate Programs regularly serves as the offical record of approved programs but contains no program data. Plans are to add data on degrees conferred to the Inventory next year and to add program-enrollments data the year after.

The New York Board of Regents is officially authorized to accredit institutions in its state. In practice, however, the institutions look to the Middle States Accrediting Association for official review. Representatives of SED usually accompnay the visiting team of consultants on a site visit as part of the Department's responsibility to review existing programs. The only data collected in support of the SED review of existing programs are collected during these site visits.

Board approval of new programs and degrees depends upon information developed by the institution in formats prescribed by SED. Since approval of either a degree or a program is an amendment to the sector or institutional master plan, SED analysis includes use of some data besides those provided in support of the request for approval. Enrollments in similar programs in the same services area and the occupational outlook for graduates of the program are examples of such data.

The Board's evaluation project began in 1969-70 with a review of 544 master's programs. More recently, the SED staff has begun a review of all doctoral programs. In each case, the review depends upon institutional self-assessment as a part of the Statewide Plan process. The SED staff then reviews the results of the institutional assessment. The SED review of master's programs led to the termination of some programs and modifications in others, almost all at the initiative of the institutions involved.

As long as self-assessment plays a large role in the review process, state-level data-collection activities in the area of program review will be limited to the registry of programs and degrees by institutions.

Research

The Office of Postsecondary Research, Information Systems and Institutional Aid (OPRISIA) is responsible for operating HEDS (the information system for the Office of Higher and Professional Education) and is a major user of the system. Enrollment projections and analysis of state financing policies are two major research efforts of the staff.

Enrollment Projections

An important part of the statewide planning effort is the development of enrollment targets for SUNY, CUNY, and the CICU-related independent institutions. The targets are established separately for four-year and two-year institutions, graduates and undergraduates, and full- and part-time students. The targets appear in the Statewide Plan and are used to describe the enrollment dimension for a number of state-level analyses, including budget recommendations for the Bundy and Tuition Assistant aid programs, general institutional budget needs, and requirements for new programs.

The projections are also used by institutions to assess probable revenue levels and enrollment impacts on long-range mission and program plans.

OPRISIA has developed an enrollment-projection model designed to respond to significant policy variables affecting enrollment expectations and to significant demographic and institutional impacts on student enrollment demands. The model concentrates on full-time undergraduate enrollments for all three sectors. The major departure from historical trend-based projection techniques is in the use of regionally variable measures of college-going rates of high-school graduates. The model also recognizes the effects of in-migration of New York enrollments and separate institutional retention rates from freshman level to upper division. Also included are (1) a categorization of institutions based on their historical ability to attract students and (2) part-time undergraduate and full- and part-time graduate enrollments (these enrollment aspects are less developed than the parts for full-time undergraduates, but work is continuing in this area).

The enrollment-projection model has been designed to accommodate other policy variables related to the public's expectations of postsecondary education in New York. Among the possibilities are changes in tuition and financial-aid commitments of the state (already explored in a separate OPRISIA modeling effort) and the impacts of city, county, and state revenue projections on the amount of resources available to each sector. The enrolment-projection model is supported by HEDS data plus projections of high-school graduates prepared by the Information Center on Education of the SED.

Financing Policies

OPRISIA has developed an experimental model (see figure 21) for analyzing strategies for financing higher education in New York. The State Financial Planning Model contains seven major components: tuition levels, cost to students, student aid, enrollment levels, institutional expenditures, state outlay, and institutional revenues. The model permits the study of the interaction among all seven components in response to such things as changes in tuition levels, new enrollment projections, and different state-aid formulas.

Only small portions of the data required to run the model are available in HEDS. This is a disadvantage, but not a serious one, since the model relies little on trend analysis. The limited dependence on historical trends produces a model that more realistically portrays actual public-policy interrelationships, an advantage that outweighs limited availability of data.

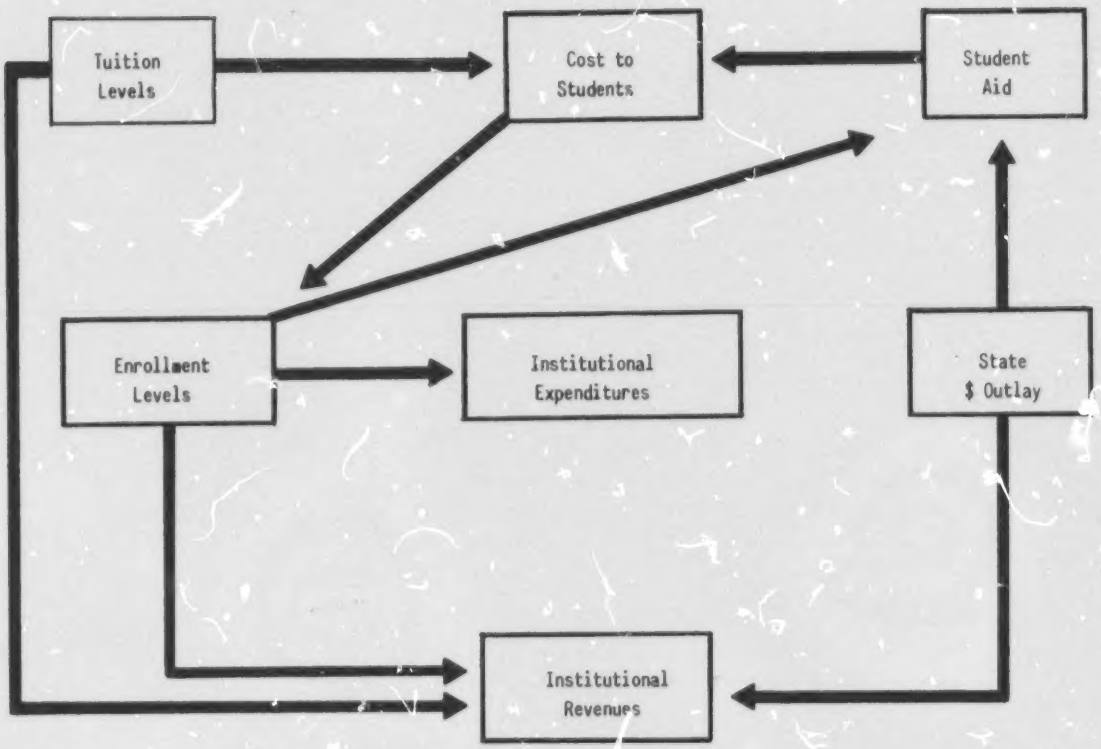
The SED plans to continue developing and refining the model, including an investigation of simpler alternatives to it.

Directory of Institutions and Inventory of Registered Degree and Certificate Programs

OPRISIA maintains the Directory as a single source of information on all accredited institutions in the state. It is used as a general reference guide by high-school counselors, staff of other state agencies, and the like. The Inventory provides an annually updated basic record of all approved programs. The Inventory is computerized but is not yet integrated into HEDS.

Figure 21

Primary Components of the State Financial Planning Model
For Higher Education in New York



Developmental Schedule and Resources

As mentioned elsewhere in the project documents, precise cost guidelines for estimating the time and resource requirements for an information-system-development effort have not been feasible to develop. Instead, the project and pilot-test-state staff have developed as complete a picture as possible of the time and resource environment within which each agency has been working.

Table 19 describes the developmental history of New York; table 20 describes the identifiable costs associated with the effort. In using this information as a guide to estimate the schedule and budget for another state, the user must carefully consider the limited scope of the responsibilities of the Office of Higher and Professional Education and the long history that that office has in sophisticated analyses of policy alternatives. The costs involved in data collection for SED are considerably less than another state might experience, while the costs for computer support and systems design are relatively higher than most other states might experience.

Conclusion

The state-level postsecondary-education information system in New York is conservatively sized, carefully related to the unique set of responsibilities of the State Education Department, and service-oriented.

New York's long history of system-level and state-level coordination of higher education has allowed the development of rather sophisticated analyses of postsecondary policy issues. Since the emphasis is on results that serve the decision process, often anticipating it by several years, users are satisfied with more leeway in the accuracy of results. This in turn permits SED to operate with a smaller, more highly aggregated data set than the size of the postsecondary enterprise and the range of responsibilities of the SED Office of Higher and Professional Education suggest might be necessary.

The Higher Education Data System, key to information-systems development in the Office, is consistent with the data-reference document but is maintained at a higher level of aggregation. Future plans, linking the Inventory of Registered Programs and Degrees to HEDS and other computerized files maintained on separate tapes, are intended to further encourage use of the system by SED offices and to improve the relevance of analytical results in terms of developing policy issues and state and institutional study requirements.

Table 19

Chronological Summary of Major Activities Related to The State-Level Information System in New York

1938	The Board of Regents of the University of New York, the State Education Department (SED), was established by constitution (previously established by statute in 1784) to serve as the coordinating and supervisory agency for all levels of education, public and private.
1966	With the advent of HEGIS, SED assumed responsibility for coordination of reporting by all institutions awarding degrees in New York.
1971	SED developed its first mechanized, on-line file for enrollment projections using high-school and college-enrollment data.
1973	SED began publishing the Postsecondary Education Newsletter.
1975	In July, New York became a participant state in the State-Level Information Base project.
	In October, SED reorganized its planning office to include a specific unit responsible for information systems.
1976	The current mechanized Higher Education Data System (HEDS) was developed and implemented.
	SED began providing assistance (about $1,000 per institution) to set up Costing and Data Management System (CADMS) modules. (By 1978, there were 18 institutions involved.)
1977	In January, New York became a pilot-test state in the State-Level Information Base project with major emphasis devoted to the capabilities of interstate data sharing and federal data collection.
	SED established the Research and Information Systems Advisory Committee to guide data collection and analysis. (Included in the Committee were representatives from the legislative staff, executive budget staff, Higher Education Services Corporation, SUNY central office staff, independent schools, degree-granting proprietary schools, and community-college association.)

Table 20

Cost of the State-Level Information System in New York 1975 through 1978

New York State Education Department (SED)

Fiscal Year	Activity (a)		Total Costs	
1975	First year of development			
	Data-Collection Activities			$ 60,000
	Developmental Costs			
	Personnel Salaries and Benefits (b)		$ 65,000	
	Direct Computer Costs (including terminal)		35,000	
		Total		100,000
	Operational Costs			
	Personnel Salaries and Benefits (b)		$ 25,000	
	Direct Computer Costs (including terminal)		5,000	
		Total		30,000
		Grand Total		$190,000
1976	Second year of development			
	Data-Collection Activities			$ 65,000
	Developmental Costs (c)			
	Personnel Salaries and Benefits (b)		$ 58,000	
	Direct Computer Costs (including terminal)		35,000	
		Total		93,000
	Operational Costs			
	Personnel Salaries and Benefits (b)		$ 33,000	
	Direct Computer Costs (including terminal)		15,000	
		Total		48,000
		Grand Total		$ 206,000
1977	Third year of development			
	Data-Collection Activities			
	Developmental Costs (c)			$ 70,000
	Personnel Salaries and Benefits (b)		$ 33,000	
	Direct Computer Costs (including terminal)		40,000	
		Total		73,000
	Operational Costs			
	Personnel Services and Benefits (b)		$ 42,000	
	Direct Computer Costs (including terminal)		20,000	
		Total		62,000
		Grand Total		$205,000
1978 Estimated	First full year of maturity of system			
	Data-Collection Activities			$ 75,000
	Developmental Costs (c)			
	Personnel Salaries and Benefits (b)		$ 9,000	
	Direct Computer Costs (including terminal)		8,000	
		Total		$ 17,000
	Operational Costs			
	Personnel Services and Benefits (b)		60,000	
	Direct Computer Costs (including terminal)		$ 20,000	
		Total		80,000
		Grand Total		$172,000

5/8/78

NOTE: Costs involve estimated costs of developing and operating the Higher Education Data System (HEDS), including the extensive Inventory of Registered Programs. HEDS is currently maintained on the GE Timesharing System under its MARK III services. This system is effective and expensive. GE does provide consulting services at no extra cost to SED.

(a)Following are descriptions of what is involved in the major activity areas in the table:

- Data collection includes forms design, printing, mailing, editing, follow-up, preparation of transmitted forms, and so forth.
- Developmental costs include design of file structures, trial loading and retrieving of data, training of staff, actual loading of data, and proofing and editing of computerized data.
- Operational costs involve actual use of the system by writing programs to produce desired tables and working with the files.

(b)Personnel salaries and benefits are for approximately 6.5 FTE staff.

(c)Developmental costs in 1976, 1977, and 1978 include loading new data.

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VIII.

SOUTH CAROLINA COMMISSION ON HIGHER EDUCATION

Background and Functions

The South Carolina Commission on Higher Education (CHE) was established in 1967. The Commission's functions are determined by the General Assembly and include the following:

1. To conduct studies of the roles, operations, structure, and external relations of South Carolina institutions of higher education.

2. To submit recommendations to the Budget and Control Board and General Assembly regarding policies, programs, curricula, facilities, administration, and financing of the state-supported institutions of higher education.

3. To receive and review the annual appropriations requests of the state-supported institutions of higher education and submit recommendations to the Budget and Control Board and the General Assembly. Capital budget requests are also reviewed by the Commission.

4. To approve new programs before they are undertaken by any state-supported institution of higher education (unless approved directly by the General Assembly) and to terminate existing programs when appropriate.

5. To administer the federal programs authorized by the Higher Education Act of 1965, as amended, including Community Service and Continuing Education under Title I, Equipment for Undergraduate Instruction under Title IV, and Construction of Undergraduate Facilities under Title VII.

6. To develop a master plan for postsecondary education and to provide for annual updating.

The Commission is designated as the 1202 Commission for South Carolina by law.

There are nine public senior colleges and universities in South Carolina. One of those, the University of South Carolina, has three four-year branches and six two-year regional campuses in addition to its main campus in Columbia. There are also 16 public two-year technical colleges and technical education centers. Six of them are comprehensive institutions, offering college-parallel and technical/occupational programs. The other 10 offer technical/occupational programs only. South Carolina also has 20 private senior colleges and five two-year private and denominational institutions. In 1977-78, 34,180 part-time and 92,814 full-time students were enrolled in degree-credit programs. Of the total, 101,254 were in public colleges and universities, while 25,740 were enrolled in private institutions.

The Commission staff consists of approximately 20 professional and support staff members and is organized into four divisions. The Division of Programs and Research is responsible for all program approvals, coordination of two-year college planning, and the special research studies of the Commission. The Division of Financial Affairs is responsible for the budget-review functions of the Commission and for maintaining the management-information system. The Division of Health Affairs is responsible for coordination, planning and approval of programs for the health professions, and coordination with the Southern Regional Education Board (SREB) regarding South Carolina's role in interstate arrangements for health-education programs. The Division of Facilities and Special Projects is responsible for comprehensive planning and capital budget approval.

Because the Commission's role has changed little since 1967, its relationship with the institutions has matured. As a result of this orderly environment, development of an information system has progressed well, and the Commission has collected a substantial amount of data without the serious difficulties that can result from lack of institutional cooperation and support.

Approach to Information Systems

Early in 1969, the Commission on Higher Education and the public senior colleges and universities agreed on the need for a statewide system of uniform data identification, collection, and reporting. Responsibility for active development of the system was assigned by the presidents of the public senior institutions of higher education and by the Executive Director of the Commission on Higher Education to an MIS working committee, composed of the vice-presidents

for academic and business affairs and other key administrators, under the chairmanship of the Assistant Director for Financial Affairs of the Commission on Higher Education.

The management-information system became operative in 1970. Beginning with data for the fall semester of 1969, the colleges and universities and the Commission began to receive and use comparable reports on students, faculty, and other essentials. By 1972, the first stage of the management-information system was virtually complete, including data on revenues and expenditures, space analysis, and analyses of nonteaching staff and student fees.

Recent reports by the public colleges and universities to the Commission include student characteristics and full-time equivalent (FTE) enrollments by level, FTE teaching faculty by rank semester-credit-hour production per FTE teaching faculty member, semester-hour and contact-hour comparisons, student/faculty ratios, average weekly teaching hours, average class sizes, average faculty salaries by rank, revenues by source, expenditures by function, student fees, and so forth. Such information in these areas was not available before the uniform information system existed.

Also in 1969, the Commission established a Computer Advisory Committee, composed primarily of the computer-center directors of the public senior colleges and universities and chaired by the Commission's Assistant Director for Financial Affairs. Its purpose is to foster the growth of computer usage in higher education, both public and private, in South Carolina. It is a coordinating body functioning primarily to improve communications among the state's universities and colleges. In particular, it (1) provides a forum for regular discussion of mutual problems; (2) communicates the needs of institutions to the Commission and advises the Commission on all computer-related matters; (3) reviews institutional plans for acquisition of computer hardware and software; and (4) encourages mutual cooperation among institutions in such areas as development of compatible programs and data formats, coordination of long-range plans, and study of joint computer facilities and systems.

Developments in computer hardware and software during the past seven years have been both rapid and extensive. From a variety of largely incompatible and often inadequate computer centers in 1969, each operating independently, South Carolina has developed a statewide higher-education computer network. The three universities have large, modern, compatible computers that also service the public colleges and some private institutions through on-line terminals. Each institution ultimately decided in its own best interests to abandon its independent approach to computing and to join in a cooperative enterprise.

The second stage of the MIS development required computerization. The first activity was a visit to the campuses of each of the public colleges and universities to determine the best approach to computerization. The resulting report made three major recommendations:

1. Complete the evolution of regional computer centers to support the academic and administrative needs of South Carolina's public colleges and universities

2. Develop a computerized institutional information base and reporting system to support each institution's internal and external reporting requirements (including CHE reports)

3. Develop a state-level information base and reporting system to support the Commission's reporting and planning requirements

Using the NCHEMS Data Element Dictionary (DED) as a model, committees composed of institutional and state staff representatives were formed to develop data sets for students, courses, faculty and staff, finance and facilities. Through the work of these committees, a South Carolina Data Element Dictionary was developed that defines the standardized data-reporting system to be used by the institutions. This dictionary was adopted by all the public colleges and universities in the state. Also, each institution has access by terminal to one of the major regional computer centers, enabling them to offer compatible computer-programming courses and giving them the computing power needed for administrative and reporting purposes.

The Commission contracted with the Computer Service Division of the University of South Carolina to provide programming and computer time to support the information base. In June 1977, programs to build and maintain the information base were completed. Programming to retrieve and report the data is under way. By means of a terminal in the Commission's office, data for fiscal 1976-77 have been processed, and data for 1977-78 are now being added.

The key to the Commission's success with MIS computerization was the use of the NCHEMS Data Element Dictionary to guide selection of the initial data elements for the South Carolina data set. Though not all of the DED data elements were selected and though the Commission modified DED definitions as necessary for use in South Carolina, this approach meant that the definitions used by South Carolina were basically compatible with the project's preliminary data definitions when they joined the State-Level Information Base project. As a function of participation in the project, the Commission hopes to further refine its data collection and the computerization of the MIS.

Another significant feature of the MIS development was the extensive involvement of top-level data users in the initial review of the proposed DED data set. Since the Commission was party to the process for selecting initial data elements and definitions, all members of the staff have at least an implicit obligation to base their analyses on the data included in that agreement and now incorporated into the management-information system. As a result, there have been few changes in the MIS, and each one is subjected to the same process of advance institutional review through the MIS working committee that led to creation of the data set in the first place.

Data-processing staff were not involved until later. This tactic yielded top-level acceptance of the concept and simplified the job for the data processors once they became involved--principally because the data set changed relatively little from the time it was initially established.

Data Set

During the developmental and testing stage of the State-Level Information Base project, each pilot-test state was asked to indicate the specific data included in its information system. Each state did so, based upon the comparison of its information system as of May 1978 to the 1977 Field Review edition (Technical Report 85) of the State-Level Information Base project. Each state also identified other major types of data that were included in its information system at that time but were not included in the preliminary version of the State-Level Information Base project's proposed data.

The project's final data framework, contained in the document entitled Postsecondary-Education Information Systems at the State-Level: Selection of Data to Address Planning Issues, is not the same as the preliminary data set. The final framework was designed to be more flexible and adaptable than that contained in Technical Report 85. Also, each state has made minor changes in its data set since May 1978. Still, the earlier comparison tables provide a reasonable current indication of how each pilot-test state's data set compares to the guidance offered by the State-Level Information Base project. Table 21 is the comparison table for the South Carolina Commission on Higher Education.

Agenda

Planning

The Commission's approach to planning is based largely on the study agenda of the 1202 Commission. In June 1975, the Planning Commission adopted an extensive list of proposed studies and a schedule guiding the work needed to complete them. The studies covered all aspects of Commission staff activities, including Statewide Goals, Institutional Missions, Enrollment Projections, Academic Affairs, Health Affairs, Student Affairs, Facilities Planning, Finance, Budgets and Computerization, and Special Studies.

The studies have covered such wide-ranging activities as a survey of proprietary-school enrollments, an assessment of library resources and needs, and a financial-aids survey. Approximately 20 studies have been completed so far, and the use of the study categories and schedule has proven effective in coordinating a wide range of separate planning-related studies.

One result of the process is the development of a statement of goals for South Carolina higher education. The goals statement, adopted by the Commission in 1972, was reaffirmed in 1977.

Related to the goals statement, a statement of institutional missions, developed from mission statements provided by all public institutions in the state, was published in July 1978 as "Comprehensive Planning in Postsecondary

TABLE 21

POSTSECONDARY-EDUCATION INFORMATION SYSTEMS AT THE STATE LEVEL
INFORMATION STRUCTURE AND FUNCTIONAL USES OF DATA
Detail by Pilot-Test States

As of May 1978

State: South Carolina
Agency: Commission on Higher Education (CHE)

INFORMATION STRUCTURE	DESCRIPTION OF DATA AVAILABLE (a)			STATE-AGENCY FUNCTIONS AND DATA USES										
Major Area / Data Categories/Data Items	Level of Aggregation	Mechanical Status	Institutional Scope	Federal Reporting	Long-Range Planning	Mission/ Role/ Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
State Information	N/A		N/A										N/A	
Population Characteristics of State														
· Census in total, by county, by population density		Mech			X									
· Distribution of family income		Mech			X									
· Education attainment by county for levels within elementary, secondary, college, and vocational education		Mech			X									
· Elementary/secondary enrollments by public/private by locality		Mech									X			
· High-school graduates by sex by race by locality		Mech									X			
· High-school equivalency recipients by sex for state		Mech									X			
Occupancy Outlook of State														
· Employment summary by industry type and by occupational classification for state		Mech			X									
· Job applicants/openings by occupational classification for state		Mech			X									
Finances of State														
· State and local revenues		Mech			X		X							
· State and local appropriations/expenditures		Mech			X		X							
· Student financial aid available from state through state agency, including number of recipients (and their characteristics) and dollar amounts of aid	N/A													
National Information														
Occupation Outlook of Nation														
· Employment summary by industry type and by occupational classification for nation	N/A													
· Job applicants/openings by occupational classification for nation	N/A													
Finances														
· Student financial aid available from federal government directly to students	N/A													

NOTE: N/A indicates not applicable.

(a) Description of Data Available for State Agency's Use:
Level of Aggregation within Agency
ID: Institutional Detail (such as individual student data)
IS: Institutional Summary (total for institutions only)
SS: State Summary (total for institutions or groups of institutions only)

Mechanized Status within Agency:
Mech: Data are, or will be, mechanized
No: No plans to mechanize hard copy
Aces: Data accessible outside agency but not maintained at agency

Institutional Scope:
Data are generally available from the following types of institutions except as noted in the table:

all public institutions

HEGIS required data are also available for private institutions

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State: South Carolina

INFORMATION STRUCTURE	DESCRIPTION OF DATA AVAILABLE			STATE-AGENCY FUNCTIONS AND DATA USES										
Major Area / Data Categories/Data Items	Level of Aggregation	Mechanical Status	Institutional Scope	Federal Reporting	Long-Range Planning	Mission/Role/Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
Institutional Information	IS	Mech											N/A	
Institutional Characteristics - *HEGIS required data: name, address, FICE code, county, U.S. congressional district, control, structure, accreditation, admissions requirements, undergraduate and graduate tuition/fees, room and board charges, and so forth (on annual NCES form 2300-1, Institutional Characteristics of Colleges and Universities)*			Publics and Privates	X										
- Other data: tuition/fees separately for all levels (including lower division, upper division, and specific professional programs), housing, and commuter information			Publics				X							
Student Characteristics Demographic - Applications, admissions, enrollments for first-time students at all levels			Publics								X			
- *HEGIS required head counts by sex, race, FT/PT, and student level, including unclassified (on annual NCES form 2300-2.3, Fall Enrollment in Institutions of Higher Education)*			Publics and Privates	X							X			
- Other head counts by age by FT/PT by student level, including unclassified			Publics								X			
~~Geographic Origin~~ Institutional Origin - *HEGIS required head counts by state (or foreign total) for all students by sex, by program level (bachelor's-degree credit, vocational technical, first professional, graduate, unclassified, and total), and for first-time freshmen and new transfer undergraduates (on NCES form 2300-2.8, Residence and Migration of College Students)*			Publics and Privates	X							X			
- Other data on head counts by FT/PT split for first-time entering students at freshman, graduate, and first-professional levels by: In-district by county (for all levels) In-state by county (for first-time freshmen) Out-of-state by state (for first-time freshmen) In-state versus out-of-state totals (for first-time graduates and professionals)			Publics								X			
- Other data on head counts by FT/PT split for new undergraduate transfers by in-state by institution, by out-of-state by state			Publics								X			
Student Ability - Head counts of first-time entering undergraduates by high-school rank percentiles, ACT score ranges, and SAT score ranges, including institutional averages			Publics											
Financial Aid - Number of recipients (and their characteristics) and dollar amounts of aid available from institution and administered by institution			Publics									X		

NOTE: CHE is the state coordinator for HEGIS reporting for public and private institutions.

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State: South Carolina

INFORMATION STRUCTURE	DESCRIPTION OF DATA AVAILABLE			STATE-AGENCY FUNCTIONS AND DATA USES										
Major Area / Data Categories/Data Items	Level of Aggregation	Mechanical Status	Institutional Scope	Federal Reporting	Long-Range Planning	Mission/Role/Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
Institutional Information (Continued)	IS	Mech											N/A	
Student Programs and Discipline Information														
Student Programs														
- Inventory of offerings by institution			Publics					X	X					
- Student Demand														
- *HEGIS required head counts by sex by FT/PT by student level (upper division, first-professional I and II, graduate I and II) for all major fields of study per HEGIS taxonomy (OE form 2300-2.9, Upper Division and Post Baccalaureate Enrollment by Degree Field, last required in 1976 has been discontinued)*			Publics and Privates	X										
- Other head counts by FT/PT for other students (lower division and nondegree/diploma/certificate), by major field of study (including not designated)			Publics											
- Costs by student level within student program			Publics				X	X	X					
- *HEGIS required numbers of degrees/diplomas/certificates conferred by sex and race by type of degree and by major field of study for July 1-June 30 (or annual NCES forms 2300-2.1 and 2.2, Degrees and Other Formal Awards Conferred)*			Publics and Privates	X				X	X					
- Other information on number of students receiving a certificate/diploma for a program of less than one year by major field of study			Publics					X	X					
- Degrees conferred by age range of students summarized by type of degree			Publics											
- Characteristics of program completers summarized by type of degree			Publics											
- Noncompleters (and exit status) by type of degree and student program			Publics											
Discipline Information														
- Costs by course level within discipline for: Degree-related instruction; Requisite preparatory/remedial; ~~No degree~~			Publics				X							
- Instructional activity: student-credit hours by course level within discipline			Publics				X	X	X					
- Instructional activity: student-contact hours and faculty-contact hours by course level within discipline for: Degree-related instruction; Requisite preparatory/remedial; ~~Nondegree~~			Publics											

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State: South Carolina

INFORMATION STRUCTURE	DESCRIPTION OF DATA AVAILABLE			STATE-AGENCY FUNCTIONS AND DATA USES										
Major Area / Data Categories/Data Items	Level of Aggregation	Mechanical Status	Institutional Scope	Federal Reporting	Long-Range Planning	Mission/ Role/ Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
Institutional Information (Continued)	IS	Mech											N/A	
Personnel														
- *HEGIS required head counts by sex by FT/PT for manpower categories for all employees. (This information is reported on NCES form 2300-3 only when the form requires information on all employees instead of just full-time instructional faculty, as occurred in 1971-72, 1972-73, and 1976-77.)*			Publics and Privates	X			X							
- *EEOC required data on head counts and salary distribution by sex by race by contract period by manpower categories for all employees. (Form EEO-6 was first required in 1975 as a biennial survey, and the same form was used in 1977 and 1979.)* (b)			Publics											
- *HEGIS required data on full-time instructional faculty by rank by sex by contract period, including numbers tenured and contributing services; and salary and benefit information. (As of 1977, NCES form 2300-3 incorporated information previously collected by AAUP on salaries for continuing faculty.)*			Publics and Privates	X			X							
- Other data on instructional/research staff. Number tenured, nontenured, and total for full-time by age range Number tenured, nontenured, and total for FT/PT by discipline ~~Service months by PCS programs~~ FTE by PCS programs			Publics											
Finances *(HEGIS required data collected annually on form 2300-4, Financial Statistics of Institutions of Higher Education)*														
- *HEGIS required current fund revenues in total (unrestricted/restricted combined) by source for tuition/fees, government appropriations by level, sales and services, other sources, and independent operations*			Publics and Privates	X			X							
- Other data on unrestricted current fund revenues by source for government appropriations by level, for other sources, and for independent operations			Publics				X							
- *HEGIS required unrestricted versus restricted current fund revenues by source for government grants and contracts by level; private gifts, grants and contracts; and endowment income*			Publics and Privates	X			X							
- Source/use matrix of current fund revenues			Publics				X							
- *HEGIS required current fund expenditures and mandatory transfers by function*			Pub. & Priv.	X			X							
- Balance-sheet information by fund groups			Publics				X							
- *HEGIS required statement of changes in fund balances*			Pub. & Priv.	X			X							
- *HEGIS required details of endowment*			Pub. & Priv.	X			X							
- *HEGIS required physical-plant indebtedness in total*			Pub. & Priv.	X			X							
- Other physical-plant indebtedness for auxiliary enterprises, hospitals, and all other			Publics				X							
- Retirement-fund contributions by a government source for an institution			Publics				X							
- *HEGIS required debt outstanding, issued, and retired amounts in total for long-term and for short-term*			Pub. & Priv.	X			X							
- Other debt outstanding, issued, and retired amounts for long-term for auxiliary enterprises, hospitals, and all other			Publics											
- *HEGIS required total interest paid from all funds*			Pub. & Priv.	X										
- Debt-service amounts and purchases of capital assets by source			Publics											

(b) Form EEO-6 is collected from the institutions by the State Department of Personnel. The Personnel Department is developing a personnel budgeting system, including EEO data, and CHE will have access to tapes of data they need for their mechanized system.

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State: South Carolina

INFORMATION STRUCTURE	DESCRIPTION OF DATA AVAILABLE			STATE-AGENCY FUNCTIONS AND DATA USES										
Major Area Data Categories/Data Items	Level of Aggregation	Mechanical Status	Institutional Scope	Federal Reporting	Long-Range Planning	Mission/ Role/ Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
Institutional Information (Continued)	IS	Mech											N/A	
Facilities - *HEGIS required assignable square feet by room-use categories and by building condition (Inventory of College and University Physical Facilities, OE fonn 2300-7, last required this type of facilities information in September 1974. NCES form 2300-7, with the same title, will be used in 1980-81 and will be limited to institutional information about physical facilities for the mobility impaired.)*			Publics and Privates	X						X				
- Station counts for class labs and classroom facilities; weekly student hours for classroom facilities			Publics							X				
- Estimated replacement cost by building condition type			Publics							X				

NOTE: In addition to the data already specified in this table, South Carolina's Commission on Higher Education has the following data:

Not Mechanized
- Detailed faculty activity analysis data collected in Fall 1977 on a one-time basis for a special study on faculty workloads

Mechanized
- Outcomes data (will be mechanized)
- More detailed current fund revenues and expenditures (but consistent with HEGIS required data)
- Data for all manpower-reporting categories
- FTE data for both students and employees (using a state-specified definition)
- Additional personnel information (from the State Department of Personnel)
- More detailed affirmative-action data on students (for reporting to the Office of Civil Rights due to South Carolina's inclusion as one of the 13 Adams States)

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Education in South Carolina: Goals, Enrollment Projections and Institutional Missions." The goals and institutional missions are policy statements without associated quantifiable measures. There are no current plans to quantify either set of statements.

The Commission has not developed a regular enrollment-projection methodology for use in projecting statewide or institutional enrollments at this time, but plans to do so within the next few months in response to a legislative mandate. The staff historically has engaged in enrollment analysis and occasionally has recommended adjustments in institutional enrollment projections as a part of its responsibility for budget review.

The staff approach to enrollment analysis uses two independent projections, where historical data permit, and combines the results into one display format. Both projection methods rely generally on the assumption that recent historical trends will continue into the immediate future.

The first method employed, called the "age ratio" method, is based on a past statistical correlation between college enrollments and the college-age population (ages 18 through 21) of the state. This correlation was established, extrapolated into the future, and combined with a projection of the college-age population to yield projected enrollments.

Cohort survival, the other method used, depends on detailed data on the movement of individuals through the educational system, from elementary levels through college. Because students expected to be enrolled in college in the near future are already enrolled in elementary and secondary schools, no estimates of future population trends are required.

Whether either of these methods continues to play a part in the Commission's expanded enrollment-planning responsibility depends on decisions in the next few months. The chances are good that the selected projection methodology will be compatible with data already available in the information system. The data needed for most enrollment-projection approaches are available, and the Commission staff prefers to avoid placing any additional reporting requirements on the institutions.

Budgeting

The Commission receives and reviews appropriation requests from all senior public colleges and universities, including the three four-year and six two-year regional campuses of the University of South Carolina. All requests are submitted in accordance with an appropriation formula, developed in counsel with the institutions that use it.

The formula includes separate categories for instruction, academic support, general administration, libraries, plant operation and maintenance, and organized research (at the two public universities). Departmental research requirements are included in the instruction category. Requirements for student services and general institutional expense are included in the general administration category.

A brief description of the formula factors follows:

Category	Base	Factor
Instruction	Projected FTE students	Student/faculty ratios and salary rates, differentiated for 22 disciplines, three student levels, and three types of institutions
Academic Support	Formula-generated faculty salaries	Percentage of base, differentiated by three types of institutions
Organized Research	Full-time graduate students	Dollar amount per graduate student
General Administration	Total dollars generated by formula for instruction	Percentage of base
Libraries	Total dollars generated by formula for instruction	Percentage of base
Plant Operation and Maintenance	Average of three previous years' expenditures	Percentage increase of base, adjusted to recognize new on-line space
Special Funding	None	Start-up funds for new programs; other agreed-upon items

The FTE-student, student/faculty ratio, and salary-rate data are all compatible with data suggested in the project's final data framework and provided by the Commission's MIS.

There is some concern among the public senior colleges and universities regarding the adequacy of the historically determined student/faculty ratios for the 22 instructional disciplines. The University of South Carolina and Clemson University are testing the NCHEMS Information Exchange Procedures to determine if they can produce cost data that will significantly improve the operation of the formulas. If the test is successful, the Commission will consider working with the other public senior institutions to gather the data and to incorporate the results into formula revisions.

The Commission also receives the budget requests for the two-year technical institutions, reviews them, and submits them to the State Budget Control Board along with other institutional budgets. There is no Commission formula for the technical institutions.

Program Review

New Programs. The Commission is responsible for approving all new programs leading to a new degree level, major, or concentration in an approved degree level in any public institution. No proposed new program may be implemented or publicized by any institution unless the Commission or the General Assembly has approved it.

The Committee on Academic Program Development, a standing committee of the Commission, reviews all proposals and makes recommendations for action on each to the Commission.

The following are major steps in the approval process.

1. A Letter of Intent, not binding on the institution, must be filed with the Commission at least 90 days before the proposal is to be submitted. Because the Committee on Academic Program Development meets quarterly to consider new programs, a quarterly cycle of due dates is maintained for Letters of Intent, submission of program proposals, and Committee meeting dates.

2. Upon receipt, each program proposal is referred to one of three advisory committees for review and comment, depending on content. The three committees are the Advisory Committee on Academic Programs, the Advisory Committee on Graduate Teacher Education, and the Health Education Authority.

3. The CHE staff then prepares a written analysis and recommendations on each proposal and submits it to members of the standing committee and to the affected institution prior to the committee meeting.

4. Standing committee recommendations are submitted to the Commission for approval. Appeal procedures are provided.

Data required on need and demand, availability of similar programs in the state or region, enrollment estimates, faculty, library resources, and estimated additional costs are specific to each proposal being submitted.

Existing programs. Review of existing programs is an ongoing staff activity, based upon the inventory of degree programs, student enrollments by program, degrees awarded by program, and program costs. The inventory is

capable of displaying a wide range of course, student, and cost data for each program. The analysis is conducted by committees of academic administrators familiar with the major fields of study being reviewed. The analysis concentrates on needless duplication and on gaps in advance. The 1978 legislature has amended the Commission's responsibilities to include authority to discontinue or terminate programs. It is too early to estimate the changes that the new authority will cause in the Commission's approach to review of existing programs.

Health Programs Planning

Health-education planning activities are coordinated by the Health Education Authority (HEA) in its capacity as an advisory body to the Commission. The HEA reviews proposed new programs for the education and training of health-care practitioners to the Commission. It is also involved with the health-professions staff of the Southern Regional Education Board in the development of new programs and arrangements for interstate enrollments for existing programs in the southern region.

A Statewide Master Planning Committee on Nursing Education, also advisory to the Commission, is studying staffing patterns and making projections of future needs for nurses in a variety of job settings. The committee's recommendations guide the approval of new nursing programs and the evaluation of existing programs.

A Task Force on Allied Health, advisory to the Health Education Authority, is helping the Commission prepare a directory of faculty resources and facilities available for the improvement of continuing education in the allied health sciences.

The Health Affairs Division of the Commission staff maintains a separate statewide inventory of health-care programs, regardless of sponsor or location, more inclusive than the CHE inventory of academic degree programs. This inventory has not yet been merged into the management-information system.

Facilities Review

Beginning in 1972, the Commission staff began developing a facilities inventory system to support assessment of facilities requirements and space-management decisions.

The project resulted in the development of a comprehensive facilities inventory system that meets the requirements of the higher-education inventory and classification procedures of the U.S. Office of Education. The institutions under the jurisdiction of the State Board for Technical and Comprehensive Education and the private colleges and universities participated in the project and are presently on the system. The facilities component of the management-information system and the comprehensive facilities inventory system have been merged into a single institutional and state-level facilities reporting system that includes the present CHE and HEGIS facilities reports.

Among the activities assigned to the Commission's Division of Facilities and Special Projects are conduct of a survey of building quality among all institutions, development of space-planning criteria to be used in planning institutional capital budget requests, periodic reports on the use of classroom and laboratory space throughout higher education, and preparation of a forecast of anticipated capital requirements as background for the planning and analysis of capital requests.

Student Financial Aid

There is no single state agency with responsibility for planning or administering financial-aid programs in South Carolina. The principal state-funded program, the Tuition Grants Program, is intended to reduce the cost to a state resident for attending any accredited private college in Soutch Carolina. The South Carolina Student Loan Corporation provides low-interest loans to state residents attending any approved institution, in or out of the state.

As part of its 1202 planning agenda, the Commission's Advisory Committee on Student Aid conducted a survey of financial-aid programs and needs. The Committee's report contained an analysis of existing programs available to South Carolina residents pursuing postsecondary study, an analysis of the total need for student financial aid in the state, and an assessment of the feasibility of expanding existing programs or starting new programs of student aid.

Developmental Schedule and Resources

As mentioned elsewhere in the project documents, precise cost guidelines for estimating the time and resource requirements for an information-system-development effort have not been feasible to develop. Instead, the project and pilot-test-state staff have developed as complete a picture as possible of the time and resource requirements within which each agency has been working.

Table 22 describes the developmental history in South Carolina; table 23 describes the identifiable costs associated with the effort. In using this information as a guide to estimate the schedule and budget for another state, the user must carefully consider the extent of data collection involved in the system. CHE, in working with South Carolina institutions, agreed on a data set considerably larger than the initial requirements for its use. While this has the advantage of allowing the agency and the system to grow into uses of that data without adding items or changing the data-collection system, it is a more extensive data-collection effort than other states might want to consider. Also, the South Carolina CHE relies on the University of South Carolina computer system for its support.

Conclusion

In the beginning of its planning for a computerized state-level MIS, the Commission chose to propose implementation of a full set of data, patterned after the NCHEMS Data Element Dictionary. What might have developed into a confrontation over data collection resulted instead in acceptance by the

Table 22

Chronological Summary of Major Activities Related to the State-Level Information System in South Carolina

1962 Advisory Committee on Higher Education was established by a legislative act. (This committee later became the Committee on Higher Education.)

1967 Commission on Higher Education (CHE) was established.

1969 Planning for state-level management-information needs began.

1970 Manual data collection from the institutions began by using special CHE forms needed in addition to HEGIS. (Initial forms are still used, and few changes have occurred. Two forms on Revenues/Expenditures and Space Utilization were added in 1971-72, and four forms on Applications for Admissions/Enrollments, SAT scores, Enrollment by Age and Level, and Institutional Origin information were added in 1977-78.)

State Auditor's Office established the Division of Computer Systems Management to coordinate all statewide data-processing activities, including authorization for all new data-processing equipment.

1973 In September, the CHE Coordinator of MIS Computerization was employed and MIS computerization design began.

1974 In February, an MIS committee was established with a representative from each institution and was chaired by the CHE Coordinator of MIS Computerization. Using the NCHEMS Data Element Dictionary (DED) as a beginning point, the committee specified those data elements (with modified definitions as appropriate) necessary for comprehensive institutional management-information systems as well as for serving likely state-level information needs.

In June, CHE published a South Carolina state-level DED based upon the work of the MIS Committee. (A Computer Advisory Committee helped with institutional implementation of the DED, while CHE began providing financial assistance for mechanization of the information system at one institution.)

1975 CHE compiled an Academic Program Inventory.

In July, South Carolina became a participant state in the State-Level Information Base project (enabling South Carolina to be informed about the experiences of the pilot-test states and to follow the progress of the project).

1976 In January, CHE began providing financial assistance to two institutions (Clemson University and University of South Carolina) for IEP implementation. (This assistance was to continue over a period of 18 months.)

1977 In January, South Carolina became a pilot-test state in the State-Level Information Base project. CHE reviewed the project's preliminary set of suggested data, modified it as needed, and began design and implementation of the state-level MIS.

In January through April, CHE was involved in systems design of the state-level MIS.

In May through August, data-base files and edits were programmed for the state-level MIS.

In June, CHE purchased a terminal for its office that was tied into the University of South Carolina's IBM 370/168-3 computer.

In August through October, production reports were designed.

In November, programming of production reports began.

Table 23

Cost of the State-Level Information System in South Carolina 1973-74 through 1978-79

South Carolina Commission on Higher Education (CHE)

Fiscal Year	Activity	State Funds			Federal Funds (c)	Grand Total (d)
		Budgeted for MIS (a)	Other (b)	Total		
1973-74	MIS Computerization Coordinator hired by CHE. Began coordination activities with the institutions in the development of institutional information systems.	$40,200	$25,000	$65,200	---	$ 65,200
1974-75	Began providing financial assistance to institutions in mechanizing institutional information systems.	$40,200	$30,000	$70,200	---	$ 70,200
1975-76	Continued assistance to institutions in mechanizing the institutional information systems. Began involvement with the State-Level Information Base project as a participant state. Provided financial support to Clemson University and the University of South Carolina for implementation of Information Exchange Procedures (IEP) beginning in January 1976.	$40,200	$35,000	$75,200	---	$ 75,200
1976-77	Continued assistance to institution in mechanizing the institutional information systems. Became a pilot-test state in the State-Level Information Base project in January 1977. Began state-level MIS design and programming for building the data base. CHE purchased a terminal for its office at a cost of $11,500. Continued financial assistance to Clemson University and the University of South Carolina for implementation of IEP (ending in June 1977).	$40,200	$41,800	$82,000(e)	$30,000	$112,000
1977-78	Continued and finished programming for building the state-level data base. Began programming of production reports. Continued assistance to institutions in mechanizing the institutional information systems (but need was diminishing).	$40,200	$50,000	$90,200(e)	$17,800	$108,000
1978-79	Will continue programming of production reports for state-level information system. May provide one-year financial support to two additional institutions for implementation of IEP (depending on availability of federal funds).	$40,200	$55,000	$95,200(e)	$12,800	$103,000

4/25/78

(a) State funds budgeted for management information systems purposes were primarily used for financing data-processing assistance to institutions in developing and implementing their own institutional information systems. In 1975-76 and 1976-77, the funds were also used for financing the implementation of Information Exchange Procedures (IEP) costing at two institutions.) From January 1977 and into 1979, these funds supported the development and computerization of the state-level information system. From January 1977 through April 1977, the CHE coordinator worked with a systems analyst from the University of South Carolina (USC) computer center to develop the data-base file structure. From May through August 1977, about six programmers at USC wrote 37 programs for building the data base, including edit routines and documentation. CHE paid for salaries, but not fringe benefits, of these programmers and of the systems analyst on a half-time basis. Beginning in September 1977, the MIS coordinator from CHE, with assistance from the USC systems analyst, specified about 70 production reports. Programming and testing of the reports began in November 1977 and will continue through the winter of 1979, involving approximately 1.5 programmers. (The $000-$1,000 data-processing cost per month is an average cost for the two fiscal years of 1977-78 and 1978-79 when computerization occurred.) USC computer facilities used for the state-level information system involve an IBM 370/168-3 and IBM 3850 mass storage system of data for quick and inexpensive retrieval.

(b) The salaries and fringe benefits of the MIS coordinator from CHE and the CHE statistical clerk/data coordinator are reflected separately under other state funds. The data coordinator enters all institutionally supplied data via the CHE terminal and proofs the data. (Some institutions may begin to supply mechanized data directly to the USC data-processing center for inclusion on the data base.) The data coordinator also writes special programs to retrieve quick summary information or computation reports via the terminal.

(c) Federal funds primarily reflect monies funded to the state as a function of the 1202 Commission. Some of these monies were used in 1976-77 to purchase a terminal.

(d) Does not include travel costs,which are estimated at about $1,000 per year for visits to other states and attendance at meetings related to state-level information systems. (South Carolina, as a participant state and pilot-test state, was involved in the exchange of information about state-level information systems through meetings funded by the State-Level Information Base project.

(e) These figures represent costs attributable to developmental activities each year.

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reporting institutions of the data-set design and of responsibility for providing it.

Success of the effort seems related to the stability of the Commission's role and the caution that has been exercised in its implementation, to the care taken by the MIS director to understand institutional concerns and resource limitations before initiating the effort, and to the initial and continuing involvement of representatives of all data-reporting institutions in decisions regarding the size and definitions for the data set.

As plans for expanded terminal access continue, institutional use of the MIS data will further solidify the state-institutional working relationship. Because of the size of the data set agreed upon in the beginning, new institutional and state-level uses can be implemented without constant additions to the data set.

IX.

THE STATE COUNCIL OF HIGHER EDUCATION FOR VIRGINIA

Background and Functions

The State Council of Higher Education for Virginia (SCHEV), established in 1956, serves as the statutory coordinating agency for postsecondary education in the state. The Council is responsible for statewide planning, developing budget guidelines and formulas for public higher education, reviewing budget requests for public institutions and making recommendations to the governor and legislature, approving new programs and degrees for public institutions, and administering state student-financial-aid programs.

Virginia has 39 public and 31 private colleges and universities. Fifteen of the public institutions are four-year colleges and universities, while the other 24 are community and two-year branch colleges. Only 5 of the private institutions are two-year colleges.

The governance of Virginia's higher-education system of both public and private colleges and universities has involved substantial, and in some cases complete, autonomy for each institution. Each of the 31 privately controlled institutions of higher education in Virginia has its own autonomous governing board. The private colleges and universities have representation on several advisory committees of the State Council of Higher Education for Virginia and are appropriately included in many of its data-gathering and planning activities for higher education. The Council of Higher Education, however, has limited or no legal authority or responsibility for coordinating the efforts of Virginia's private institutions of higher education.

For the public sector of Virginia's higher education, 12 of the senior state-supported institutions have their own individual governing boards that are responsible for only 1 institution. Additionally, the Board for the University of Virginia is also responsible for the four-year Clinch Valley College, and the Board for the College of William and Mary is also responsible for the two-year Richard Bland College.

The remaining 23 state-supported institutions are community colleges and are all governed by a single major sector board, the State Board for Community Colleges. This sector board and the senior-college boards govern the state-supported system of higher education that is coordinated by the Council of Higher Education.

Governing boards of Virginia's state-supported institutions are appointed by the governor with confirmation by the General Assembly. By statute, the boards are responsible for the effective operation of the institutions. Each board is responsible for setting board operational policies for the institution and for the appointment of the president.

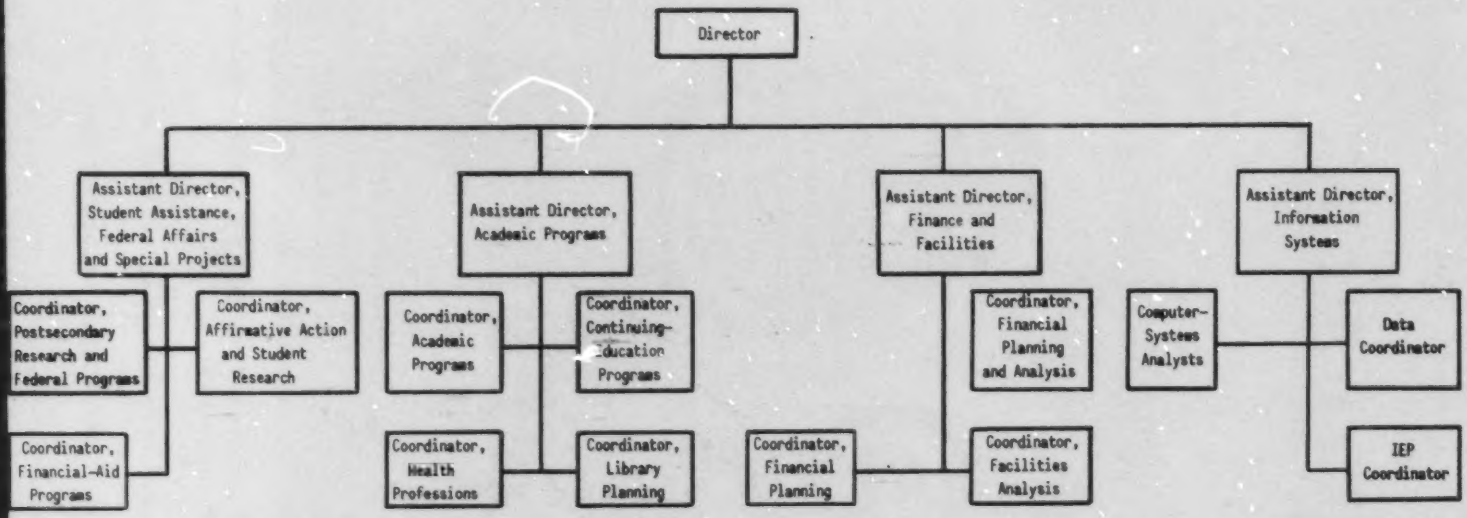
The Council has a relatively small staff organized into divisions of Finance and Facilities, Academic Programs, Student Assistance/Federal Affairs/Special Services, and Information Systems. Figure 22 is an organization chart describing the first two levels of professional-staff positions. The rest of the staff is composed mostly of research assistants and secretarial staff.

Among the more significant specific responsibilities of the Council are to:

1. Develop a biennial plan for coordination of the system
2. Approve any proposed change in the statement of mission of an existing institution and to define the mission of any new institution
3. Study and make recommendations regarding any change in degree-granting level proposed by an institution
4. Approve enrollment projections proposed by each institution
5. Approve all new academic programs proposed by any public institution
6. Require the discontinuance of any nonproductive academic program
7. Approve the establishment of any new department branch, college, or school
8. Develop a uniform, comprehensive data-information system

Figure 22

Organization of the State Council of Higher Education for Virginia
As of December 1978



9. Establish uniform standards of accounting and a uniform inventory of facilities

10. Review and comment on institutional budget requests including recommendations to the governor on both capital and operating requirements as submitted by the institution

11. Analyze and make recommendations regarding the provisions of educational programs in the health professions and occupations

12. Approve all academic and honorary degrees proposed by either public or private institutions in the state

The Council's staff also administers two state-funded programs of student financial aid and supports the governor and the secretary of education in coordinating the postsecondary-education portion of Civil Rights compliance activities for the state of Virginia.

Approach to Information Systems

SCHEV made a commitment to develop an integrated, computerized state-level information base well before Virginia became a pilot-test state in 1977. Two main factors leading the the decision were the need for cost-study information to support development of budget formulas and the experience of the staff with a one-time faculty-activity analysis directed by the legislature. The feasibility of the decision was easier to assess given the Council's recent experience with the faculty-activity study. The need for a regular data collection, incorporating and building upon HEGIS, was evident because of the Council's obligation to conduct detailed cost analyses and to estimate (through budget formulas) the resource requirements for state-supported colleges and universities. Another important factor was the presence on the staff of several people with experience in designing and implementing complex management systems and information bases and with an appreciation for the importance of such systems in the implementation of the role of a state postsecondary-education agency.

The system developed by the SCHEV staff is called the Planning and Analysis System. It contains six files, incorporates HEGIS, the IEP costing data, and other program- or discipline-related data needed to support the Council's program-review responsibilities. Figure 23 provides a brief schematic description of the system.

Besides the data collected by HEGIS, SCHEV requires the following surveys to support the system.[6]

Tuition charges and student fees, current and next year

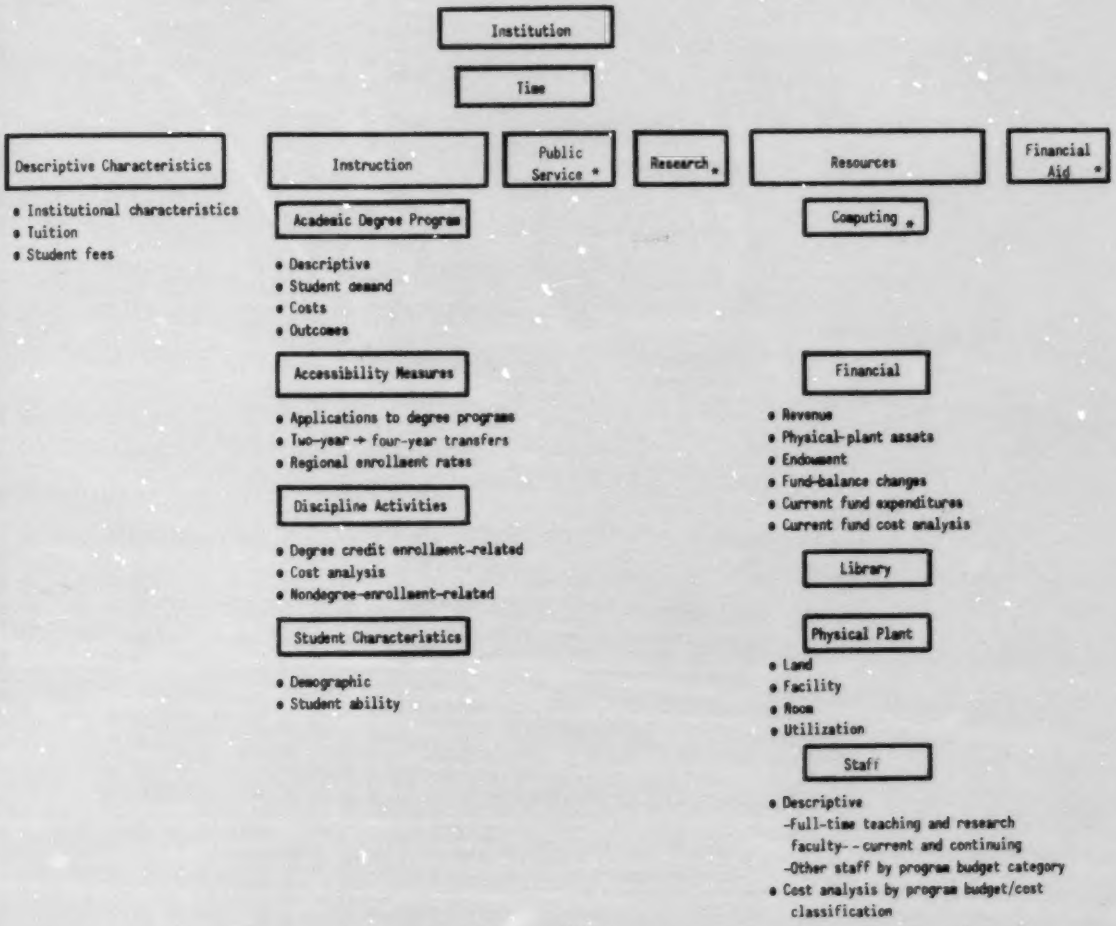
*Community-education offerings, preceding year

---

6. An asterisk indicates that the survey is required of state-supported institutions only. All others are submitted by both public and private colleges and universities.

Figure 23

State-Level Information in Virginia--The Planning and Analysis System



*To be developed

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*IEP Student Data Module

State-supported student financial aid, most recent year

Summary head count off-campus enrollment by term

Summary resident head count enrollment by term

*IEP Costing Report

Total applications for fall undergraduate, professional, and graduate (submitted by November 7 of fall term)

Total transfer applications for fall admission from two-year colleges (submitted by November 7 of fall term)

Summary head count enrollment by age category (submitted by November 15 for fall term)

Residence of students (submitted by November 15 for fall term)

*Affirmative Action Report (semi-annual)

Room, building, and land inventory

*Facilities Utilization Report

Data Set

During the developmental and testing stage of the State-Level Information Base project, each pilot-test state was asked to indicate the specific data included in its information system. Each state did so, based upon the comparison of its information system as of May 1978 to the 1977 Field Review edition (Technical Report 85) of the State-Level Information Base project. Each state also identified other major types of data that were included in its information system at that time but were not included in the preliminary version of the State-Level Information Base project's proposed data.

The project's final data framework, contained in the document entitled Postsecondary-Education Information Systems at the State Level: Selection of Data to Address Planning Issues, is not the same as the preliminary data set. The final framework was designed to be more flexible and adaptable than that contained in Technical Report 85. Also, each state has made minor changes in its data set since May 1978. Still, the earlier comparison tables provide a reasonable current indication of how each pilot-test state's data set compares to the guidance offered by the State-Level Information Base project. Table 24 is the comparison table for the State Council of Higher Education for Virginia.

TABLE 24

POSTSECONDARY-EDUCATION INFORMATION SYSTEMS AT THE STATE LEVEL
INFORMATION STRUCTURE AND FUNCTIONAL USES OF DATA
Detail by Pilot-Test States

As of May 1978

State: Virginia
Agency: State Council for Higher Education (SCHEV)

INFORMATION STRUCTURE	DESCRIPTION OF DATA AVAILABLE (a)			STATE-AGENCY FUNCTIONS AND DATA USES										
Major Area / Data Categories/Data Items	Level of Aggregation	Mechanized Status	Institutional Scope	Federal Reporting	Long-Range Planning	Mission/ Role/ Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
State Information	N/A		N/A											
Population Characteristics of State														
- Census in total, by county, by population density		Mech			X						X			
- Distribution of family income		Mech										X		
- Education attainment by county for levels within elementary, secondary, college, and vocational education		Mech			X						X			
- Elementary/secondary enrollments by public/private by locality		Mech			X						X			
- High-school graduates by sex by race by locality													X	
- High-school-equivalency recipients by sex for state														
Occupancy Outlook of State														
- Employment summary by industry type and by occupational classification for state		Aces			X				X					
- Job applicants/openings by occupational classification for state		Aces			X				X					
Finances of State														
- State and local revenues		Aces												
- State and local appropriations/expenditures		Aces												
- Student financial aid available from state through state agency, including number of recipients (and their characteristics) and dollar amounts of aid		Mech										X		
National Information														
Occupation Outlook of Nation														
- Employment summary by industry type and by occupational classification for nation		Aces			X				X					
- Job applicants/openings by occupational classification for nation		Aces			X				X					
Finances														
- Student financial aid available from federal government directly to students		Aces					X							

NOTE: N/A indicates not applicable.

(a) Description of Data Available for State Agency's Use:
Level of Aggregation within Agency
ID: Institutional Detail (such as individual student data)
IS: Institutional Summary (totals by institutions only)
SS: State Summary (totals for all institutions or groups of institutions only)

Mechanized Status within Agency:
Mech: Data are, or will be, mechanized
No: No plans to mechanize hard copy
Aces: Data accessible outside agency but not maintained at agency

Institutional Scope:
Data are generally available from the following types of institutions except as noted in the table:

all public and private (except where noted for public only)

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State: Virginia

INFORMATION STRUCTURE	DESCRIPTION OF DATA AVAILABLE			STATE-AGENCY FUNCTIONS AND DATA USES										
Major Area Data Categories/Data Items	Level of Aggregation	Mechanical Status	Institutional Scope	Federal Reporting	Long-Range Planning	Mission/ Role/ Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
Institutional Information														
Institutional Characteristics - *HEGIS required data: name, address, FICE code, county, U.S. congressional district, control, structure, accreditation, admissions requirements, undergraduate and graduate tuition/fees, room and board charges, and so forth (on annual NCES form 2300-1, Institutional Characteristics of Colleges and Universities)*	IS	Mech	Publics and Privates	X	X	X			X			X		
- Other data: tuition/fees separately for all levels (including lower division, upper division, and specific professional programs), housing, and commuter information	IS	Mech	Publics and Privates				X					X		
Student Characteristics														
Demographic - Applications, admissions, enrollments for first-time students at all levels	IS	Mech	Publics and Privates		X		X				X		X	
- *HEGIS required head counts by sex, race, FT/PT, and student level, including unclassified (on annual NCES form 2300-2.3, Fall Enrollment in Institutions of Higher Education)*	IS	Mech	Publics and Privates	X	X	X	X			X	X		X	
- Other head counts by age by FT/PT by student level, including unclassified	IS	Mech	Pub. & Priv.		X						X			
Geographic Origin - *HEGIS required head counts by state (or foreign, total) for all students by sex, by program level (bachelor's-degree credit, vocational technical, first professional, graduate, unclassified, and total), and for first-time freshman and new transfer undergraduates (on NCES form 2300-2.8, Residence and Migration of College Students)*	IS	Mech	Publics and Privates	X	X	X	X				X			
- Other data on head counts by FT/PT split for first-time entering students at freshman, graduate, and first-professional levels by: ~~In-district by county (for all levels)~~ In-state by county (for first-time freshmen) Out-of-state by state (for first-time freshmen) In-state versus out-of-state totals (for first-time graduates and professionals)	IS	Mech	Publics and Privates								X			
- Other data on head counts by FT/PT split for new undergraduate transfers by in-state by institution, by out-of-state by state (b)	IS	Mech	Publics								X			
Student Ability - Head counts of first-time entering undergraduates by high-school rank percentiles, ACT score ranges, and SAT score ranges, ~~including institutional averages~~	IS	No (will be)	Publics and Privates			X								
Financial Aid - Number of recipients (and their characteristics) and dollar amounts of aid available from institution and administered by institution	IS	Mech	Publics		X	X	X					X		

NOTE: SCHEV is the state coordinator for HEGIS reporting for all institutions. Additionally, it serves as the facilitator for collecting all federally required affirmative-action data.

(b) These data are also used for articulation studies.

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State: Virginia

INFORMATION STRUCTURE	DESCRIPTION OF DATA AVAILABLE			STATE-AGENCY FUNCTIONS AND DATA USES										
Major Area Data Categories/Data Items	Level of Aggregation	Mechanical Status	Institutional Scope	Federal Reporting	Long-Range Planning	Mission/Role/Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
Institutional Information (Continued)														
Student Programs and Discipline Information														
Student Programs - Inventory of offerings by institution	IS	Mech	Publics and Privates		X	X	X	X	X		X			
- Student Demand - *HEGIS required head counts by sex by FT/PT by student level (upper division, first-professional I and II, graduate I and II) for all major fields of study per HEGIS taxonomy (OE form 2300-2.9, Upper Division and Post Baccalaureate Enrollment by Degree Field, last required in 1976 has been discontinued)*	IS	Mech	Publics and Privates	X	X	X		X	X					
- Other head counts by FT/PT for other students (lower division and nondegree/diploma/certificate), by major field of study (including not designated)	IS	Mech	Publics and Privates		X	X		X	X		X			
- Costs by student level within student program	IS	Mech	Publics		X		X		X					
- *HEGIS required numbers of degrees/diplomas/certificates conferred by sex and race by type of degree and by major field of study for July 1-June 30 (on annual NCES forms 2300-2.1 and 2.2, Degrees and Other Formal Awards Conferred)*	IS	Mech	Publics and Privates	X	X	X		X	X				X	
- Other information on number of students receiving a certificate/diploma for a program of less than one year by major field of study	IS	Mech	Pub. & Priv.		X									
- Degrees conferred by age range of students summarized by type of degree	N/A													
- Characteristics of program completers summarized by type of degree	N/A													
- Noncompleters (and exit status) by type of degree and student program	N/A													
Discipline Information - Costs by course level within discipline for: Degree-related instruction Requisite preparatory/remedial Nondegree	IS	Mech	Publics		X		X		X					
- Instructional activity: student-credit hours by course level within discipline	IS	Mech	Publics		X	X	X	X	X		X			
- Instructional activity: student-contact hours and faculty-contact hours by course level within discipline for: FTE Degree-related instruction Requisite preparatory/remedial Nondegree	IS	Mech	Publics				X		X	X				

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State: Virginia

INFORMATION STRUCTURE	DESCRIPTION OF DATA AVAILABLE			STATE-AGENCY FUNCTIONS AND DATA USES										
Major Area / Data Categories/Data Items	Level of Aggregation	Mechanical Status	Institutional Scope	Federal Reporting	Long-Range Planning	Mission/Role/Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
Institutional Information (Continued)														
Personnel														
- *HEGIS required head counts by sex by FT/PT for manpower categories for all employees. (This information is reported on NCES form 2300-3 only when the form requires information on all employees instead of just full-time instructional faculty, as occurred in 1971-72, 1972-73, and 1976-77.)*	IS	Mech	Publics and Privates	X			X							
- *EEOC required data on head counts and salary distribution by sex by race by contract period by manpower categories for all employees. (Form EEO-6 was first required in 1975 as a biennial survey and the same form was used in 1977 and 1979.)*	IS	Mech	Publics	X									X	
- *HEGIS required data on full-time instructional faculty by rank by sex by contract period, including numbers tenured and contributing services; and salary and benefit information. (As of 1977, NCES form 2300-3 incorporated information previously collected by AAUP on salaries for continuing faculty.)*	IS	Mech	Publics and Privates	X	X									
- Other data on instructional/research staff.														
Number tenured, nontenured, and total for full-time by age range														
Number tenured, nontenured, and total for FT/PT by discipline														
~~Service months by PCS programs~~ FTE by PCS programs	IS	Mech	Publics		X				X				X	
Finances (*HEGIS required data collected annually on form 2300-4, Financial Statistics of Institutions of Higher Education*)														
- *HEGIS required current fund revenues in total (unrestricted/restricted combined) by source for tuition/fees, government appropriations by level, sales and services, other sources, and independent operations*	IS	Mech	Publics and Privates	X	X		X							
- Other data on unrestricted current fund revenues by source for government appropriations by level, for other sources, and for independent operations	IS	Mech	Publics		X		X							
- *HEGIS required unrestricted versus restricted current fund revenues by source for government grants and contracts by level; private gifts, grants and contracts; and endowment income*	IS	Mech	Publics and Privates	X	X	X	X							
- Source/use matrix of current fund revenues N/A														
- *HEGIS required current fund expenditures and mandatory transfers by function*	IS	Mech	Publics and Privates	X	X	X	X							
- Balance-sheet information by fund groups	IS	Mech	Publics				X							
- *HEGIS required statement of changes in fund balances*	IS	Mech	Pub. & Priv.	X			X							
- *HEGIS required details of endowment*	IS	Mech	Pub. & Priv.	X			X							
- *HEGIS required physical-plant indebtedness in total*	IS	Mech	Pub. & Priv.	X	X		X			X				
- Other physical-plant indebtedness for auxiliary enterprises, hospitals, and all other	IS	Mech	Publics		X		X			X				
- Retirement-fund contributions by a government source for an institution	IS	Mech	Publics				X							
- *HEGIS required debt outstanding, issued, and retired amounts in total for long-term and for short-term*	IS	Mech	Publics and Privates	X	X		X							
- Other debt outstanding, issued, and retired amounts for long-term for auxiliary enterprises, hospitals, and all other	IS	Mech	Publics		X		X							
- *HEGIS required total interest paid from all funds*	IS	Mech	Pub. & Priv.	X			X							
- Debt-service amounts and purchases of capital assets by source	IS	Mech	Publics		X		X			X				

NOTE: Additional detailed personnel information is available from the State Division of Personnel and Training on mechanized tapes (for public institutions only).

Additional detailed financial data are available from the State Department of Accounts (for public institutions only).

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State: Virginia

INFORMATION STRUCTURE	DESCRIPTION OF DATA AVAILABLE			STATE-AGENCY FUNCTIONS AND DATA USES										
Major Area / Data Categories/Data Items	Level of Aggregation	Mechanical Status	Institutional Scope	Federal Reporting	Long-Range Planning	Mission/ Role/ Scope	Budgeting	Program Review: Current Programs	Program Review: New Programs	Facilities Review	Enrollment Projections	Financial Aid	Affirmative Action	Published Information
Institutional Information (Continued)														
Facilities														
· *HEGIS required assignable square feet by room-use categories and by building condition (Inventory of College and University Physical Facilities, OE form 2300-7, last required this type of facilities information in September 1974. NCES form 2300-7, with the same title, will be used in 1980-81 and will be limited to institutional information about physical facilities for the mobility impaired.)*	IS	Mech	Publics and Privates	X	X	X	X		X	X	X			
· Station counts for class labs and classroom facilities; weekly student hours for classroom facilities	IS	Mech	Publics		X		X			X				
· Estimated replacement cost by building condition type	IS	Mech	Pub. & Priv.		X		X			X				

NOTE: In addition to the data already specified in this table, Virginia's State Council for Higher Education has the following data:

Not Mechanized
- Extensive information used in program review

Mechanized
- Detailed financial-aid data
- Additional student-fee data
- Additional facilities data
- FTE faculty data
- Additional detailed financial data. (These data are sent to the State Department of Accounts by public institutions and are available to the Council.)
- Additional personnel information. (Virginia's State Division of Personnel and Training collects detailed data on each employee in the public institutions, and the Council has access to mechanized summary data from this source as well as detailed information as needed. Personnel reports required for federal reporting may be generated from this source.)
- More detailed affirmative-action data on students (for reporting to the Office of Civil Rights due to Virginia's inclusion as one of the 13 Adams States).

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Planning

In 1967, the State Council of Higher Education for Virginia published the first master plan for higher education in the state. It was intended as a 10-year guide for the future development of the state's higher-education community. The plan was considered an important initial step for the state, marking for the first time that addressing specific goals and implementing recommendations had been formalized and widely circulated. Since 1967, the Council has collected and analyzed data on programs, enrollments, finances, and facilities in Virginia's state-supported institutions. It did not, however, attempt to blend the data into a comprehensive document or to relate them to changing conditions.

The publication in 1974 of the Virginia Plan for Higher Education provided such a document. The Plan was developed by the SCHEV staff with the coooperation of the public and private institutions of higher education, the Council's General Professional Advisory Committee, and some 300 faculty, students, legislators, and citizens who helped to formulate the new goals. Developed over an 18-month period, the Plan sets forth and explains 14 immediate higher-education goals for the state, suggests over 40 recommendations for action, and attempts to set forth a detailed planning statement of the direction and future emphasis for each public higher-education institution in the state.

The 1974 Virginia Plan for Higher Education was updated in 1977 in a document entitled A Progress Report. Another major update is scheduled in 1979. One aspect of that plan will be a detailed profile of the institutions based on data available in the Planning and Analysis System.

The IEP project, discussed later, has occupied most of the time available for major systemwide projects, and recent staff changes and office reorganization plans have further limited the time available for additional staff activities.

The 1974 Plan was not a data-intensive effort. As status reports are prepared that analyze progress toward the objectives in that Plan, a stronger link between the Plan and the data system can be expected; the 1979 update will be a major step in that direction.

Budgeting

Two data-intensive activities characterize the approach of SCHEV to its budgetary responsibilities. First, SCHEV uses a formula approach to formation of its budget recommendations to the governor and legislature. Second, SCHEV has established the NCHEMS Information Exchange Procedures (IEP) as a regular data-reporting effort for all public institutions. The two efforts are both linked to the SCHEV attempt to develop more sensitive ways of assessing resource use in the system and predicting resource requirements for public higher education.

The budget-review responsibilities of SCHEV are closely tied to those of the state Department of Planning and Budget (DPB). The budget formula, expressed as budget guidelines for institutions of higher education, is made an appendix to the biennial budget instructions of DPB. Institutions are not bound by the guidelines but must present a convincing explanation and justification to SCHEV before the exception will be recognized in the SCHEV recommendations to the legislature and the governor. In practice, exceptions are rarely granted.

SCHEV issues specific guidelines regarding staffing requirements for the following budget categories:

1. Instruction
    a. General academic
    b. Off-campus
    c. Summer
2. Libraries
3. Student Services
4. Institutional Support
5. Plant Operation and Maintenance

Academic support, except for libraries and departmental research, is not separately recognized, but staffing allowances for both are built into the formula for instruction. There are no formulas for public service, organized research, auxiliary enterprises, or community education. Figure 24 presents a brief summary of the bases for the budget formulas.

After receiving budget requests from the public four-year schools and the community-college board, the SCHEV-staff review determines consistency with guidelines, decides on any requested exceptions, and forwards the requests, with SCHEV recommendations, to the governor's Department of Planning and Budgeting.

The SCHEV staff is consulted as a part of the executive and legislative review process but is not involved in the allocation of appropriated funds. Legislative appropriations are made directly to each college or university. The community-college-system office has the authority to adjust appropriation to each of the community colleges.

The IEP project is intended to support refinements in the budget guidelines and to broaden the programmatic basis of the process of estimating and defending college and university resource requirements. Beginning with the

Figure 24

Virginia's Budget Formula Bases as Used for Institutions of Higher Education

BUDGET CATEGORY	BASE	FORMULA FACTOR	DIFFERENTIATION
Regular Instruction	Projected FTE students	Student-faculty ratios and salary rates	18 specific (and one nonspecific) disciplines
Off-Campus and Summer Session	Projected FTE students	Student-faculty ratios and salary rates	Separately calculated from regular instruction
Academic Support	FTE teaching and research positions	Position ratios (times) salary rates	Three types of institutions
General Administration and Student Services	Number of FTE teaching and research instructional positions	Position ratios (times salary rates	• Three types of institutions • Three kinds of personnel (classified; teaching and research; administration) • Adjustments for high part-time enrollments
Libraries Personnel	Projected FTE enrollment and FTE faculty	Position ratios	• Three types of institutions • Special guidelines for research universities
Collections	Volume standards	Dollar rate per volume	None
Plant Operation and Maintenance	Projected assignable square feet	Ratios of existing PDM staff to assignable square feet	None

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1975-76 academic year, the State Council of Higher Education for Virginia requested that institutions provide costing information about disciplines and student degree programs, using procedures and software based upon the Information Exchange Procedures developed by NCHEMS. The resulting cost study is in the final stages of preparation and is a pilot for more detailed studies. The present study is aggregated only by institutional type. The next cost study, scheduled for 1979, will include institution-specific information.

The purposes of the Virginia Information Exchange Procedures project are to:

1. Provide information previously not obtainable from most institutions

2. Reduce the number of reports submitted to SCHEV annually

3. Eliminate cumbersome and artificially structured reports

4. Provide standard procedures and mechanisms for analysis of data by both institutions and SCHEV

The Virginia Information Exchange Procedures (VIEP) differ from those developed by NCHEMS as follows:

1. The Virginia program classification structure was used rather than the NCHEMS program classification structure

2. A modified definition of direct cost was developed

3. A source-of-funds designation was added

4. Standard nomenclature for all parameter identifiers was adopted

Because Virginia institutions have significantly varying organizational structures and operating procedures, it was necessary to adopt a standard taxonomy or classification structure so that interinstitutional comparisons would be possible. The use of the program classification structure meant that some institutions reported information in greater detail than their current organizational chart or accounting structure, while others reported considerably less detail. These procedures are not without fault, but no others were available supported by computer software and validated on the basis of widescale implementation. As other procedures or modifications to the existing IEP procedures are recommended, SCHEV will review and implement them as appropriate.

The following were the implementation steps:

1. The instructional workload matrix was developed

2. The faculty workload matrix was developed

3. Direct expenditure crossover procedures were determined

4. Discipline and student program direct costs were calculated

5. Report data files were prepared

The NCHEMS Costing and Data Management System software provided computerized assistance to the institutions (see figure 25 on following page). Only four of the seven modules were used in the preparation of the VIEP Report:

1. Student Data Module (SDM)

2. Personnel Data Module (PDM)

3. Account Crossover Module (ACM)

4. Data Management Module (DMM)

The Faculty Activity Module (FAM) was not used since it requires a faculty survey. However, this module, with minor modifications, was used in the Tenure and Faculty Workload Project completed in November 1976. The Student Outcome Module (SOM) is designed to process a student survey; SCHEV has no plans to use this module, but it is available for institutional use. The objectives of the study did not include projection of resource requirements, but the Resource Requirements Prediction Model is also available for institutional use, particularly in forecasting budget requirements and in identifying enrollment shifts caused by curricular decisions such as new programs and changing degree requirements.

Program Review

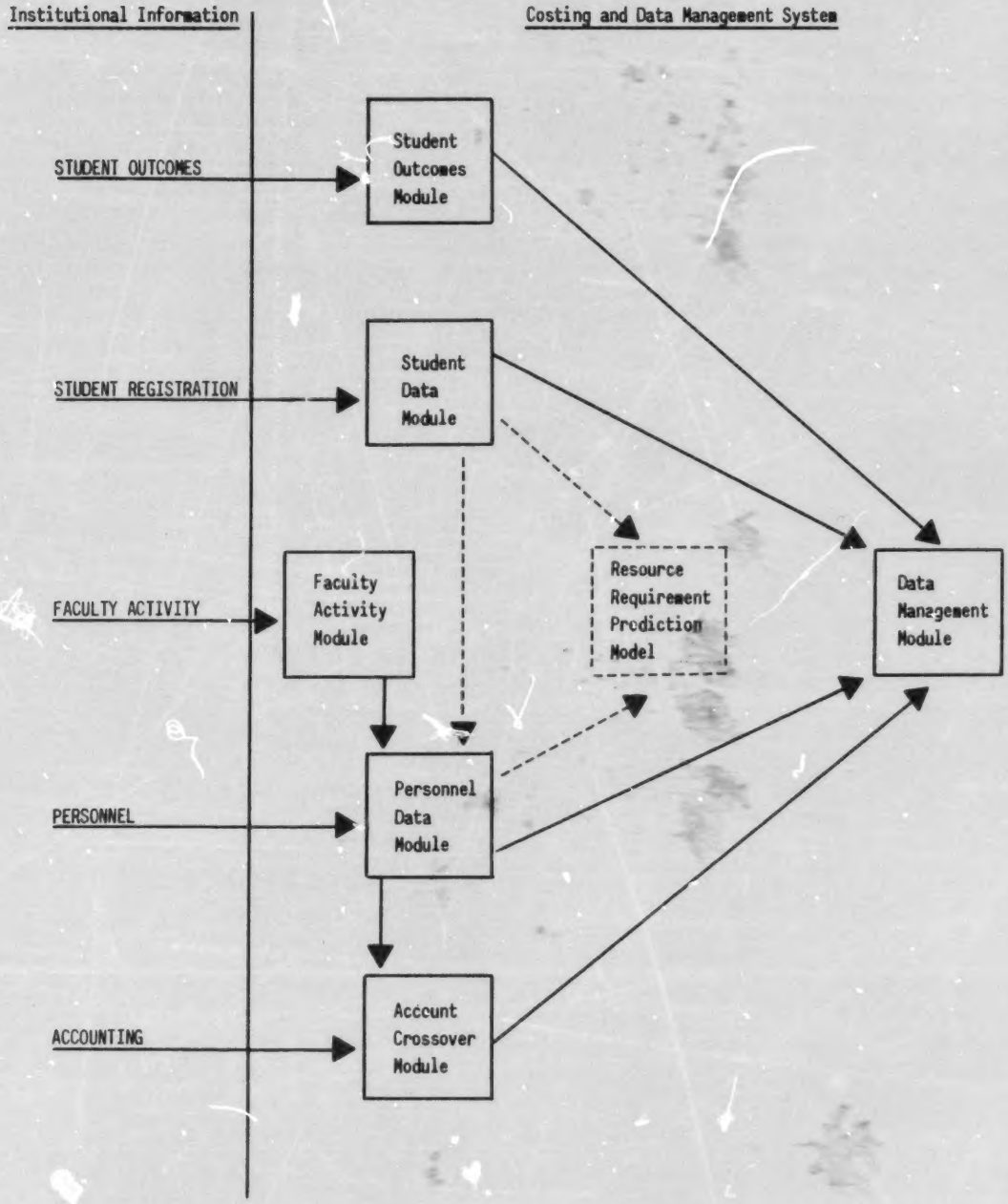
Existing Programs. In March of 1978, the Council of Higher Education adopted a new set of policies and procedures for approving academic programs. Under these procedures, institutions must provide a six-year projection of the programs they intend to propose. The Council receives the updated six-year projections in the first year of each biennium. It then announces the approved programs for the next biennium early in each odd numbered year.

Integral to the review and approval process is the Council's concern that proposed programs should be productive and not unnecessarily duplicative of programs already in operation. To determine the need for proposed and existing programs, the Council usually studies enrollments and degrees conferred throughout Virginia, along with regional and national manpower requirements and training statistics. Existing degree programs are evaluated by assessing the number of degrees conferred or by reviewing data on student enrollment.

The Council staff is aware that quantitative evaluation of degree programs is not a substitute for qualitative evaluation, but leaves to institutions of higher education responsibility for continuous evaluation of program quality. The Council does request that the institutions develop procedures for the

Figure 25

Structure of the Costing and Data Management Systems Used by The State Council of Higher Education for Virginia



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qualitative evaluation of degree programs. Any new program proposed must have performance criteria by which the program can be objectively evaluated at periodic intervals.

For the purpose of evaluation, a degree program is defined as an area of specialization (major) for which recognition is intended to be given by the conferring of a degree. Program name, HEGIS code, and degree level are used to distinguish among degree programs.

The first step in the evaluation of a degree program's productivity is its record of graduates, determined by the number of degrees conferred each year and the average per year over a period of several years. The Council recognizes that a certain amount of time must elapse for students to complete the requirements for a degree, and for a program to develop and gain acceptance. Allowances are made to recognize differences in degree level, program nature, and the status of students as part-time or full-time. Annual productivity standards are determined by program level. A certain minimum annual average number of graduates is expected, as follows:

- Associate in arts and associate in science degrees, 10
- Associate in applied science degrees, 7
- Bachelor's degrees, 5
- Master's degrees, 3
- Doctoral degrees, 2

Productivity is reviewed each biennium, covering the preceding five years where possible. The five-year average is used to allow for year-to-year fluctuations in the number of graduates from a specific program.

In the event that any degree program has fewer than the number of graduates established in the degree-productivity criteria, the staff of the State Council of Higher Education consults with institutional officers regarding other possible justifications for continuation of the program. Should an institution wish to continue a program despite few graduates, it will be provided the opportunity to justify such a program by showing that it supports other institutional programs or sponsored research projects.

The biennial program evaluation is initiated by the staff of the State Council of Higher Education. Composite tables of degrees conferred are prepared for each institution from previously verified data, the HEGIS report of Degrees Conferred (O.E. 2300-2.1) by degree level and by program classification code, and nomenclature with crosscheck on each institution's inventory of approved programs.

Draft tables are sent to each institution for verification of new data and for comment on any discrepancies or irregularities. Council staff confers with institutional administrators on any problems identified. A questionnaire

is then sent to the appropriate institutional administrative officer for any degree program that fails to meet the established degree-productivity criteria. Other factors to be considered are identified at this time. Council staff then consults with institutional administrative officers on the questionnaire responses and the action to be taken on each program in question. Council staff reports evaluation results to the State Council of Higher Education for Virginia for its information or recommended action (for example, continuation, closed scrutiny or probation, termination with adequate phase-out time). Institutions are given the opportunity to appeal a Council decision.

New Programs. The basis for the new-program-approval activity of SCHEV is an institution-prepared curricular plan, developed for the first time in 1978 and revised every two years thereafter in the even numbered years. Between September and December in 1978, institutions submitted their curricular plans to the Council of Higher Education, identifying the academic programs that they proposed to initiate between July 1979 and June 1986.

Programs to be initiated prior to June 1982 were classified by the institution according to the SCHEV instructions and are expected to be accompanied by SCHEV-specified supportive data. A student-credit-hour profile by discipline and by degree program, derived from the Virginia Information Exchange Procedures-Student Data Module (SDM), is expected to be included for each proposed degree program. For each program proposed for initiation in the second (1982-84) and the third (1984-86) biennia, more general data requirements are established.

In reviewing institutional plans, the Council will seek to develop a comprehensive, systemwide plan for the introduction of new academic programs to serve the citizens of Virginia. This plan will avoid unnecessary duplication of degree programs within the system of higher education and will consider alternative ways in which certain programs can be made available to Virginians. The plan will also be compatible with the enrollment projections upon which operating and capital budget requests are largely based.

When it has approved each institution's curricular plan for the next six years, the Council will have approved the initiation of those academic programs contained in the approved plan and schedule for initiation during the next biennium. For example, between September and December in 1980, institutions will submit revised plans through June 1988, with detailed information on those programs proposed for initiation in the 1982-84 biennium and less information on those proposed for initiation from 1984 to 1988. When these revised plans are approved, the institutions will have been authorized by the Council of Higher Education to initiate the programs planned for 1982-84. Under unusual circumstances, an institution may request permission from the Council of Higher Education to alter its curricular plan outside of the procedural guidelines set forth in this section.

When the institution is actually prepared to initiate a program, it will submit to the Council of Higher Education a "Statement of Readiness." This statement should include information that updates--but does not duplicate--what was provided in the original program-approval request. The Council will

formally authorize initiation of the program within 60 days of receiving a Statement of Readiness from the institution.

During the review of the biennial revisions to curricular plans, members of the Council staff may meet with institutional representatives to discuss academic programs that are included in the plans. On these occasions, Council staff and institutional representatives can identify proposed academic programs that might require prior or supplemental Council action (authorization to offer a new level of degree, authorization to establish a new organizational unit, authorization to offer instruction in new locations). At the same time, the relationship between each institution's curricular plan and its long-range enrollment projections can be explored and, if necessary, clarified.

The SCHEV program-review responsibilities are being developed in a way that encourages use of data already available in the Planning and Analysis System to support necessary staff analysis. Future revisions in program-review procedures can be expected to be even more compatible with the data system.

Enrollment Projections

The Council is responsible for approving enrollment projections for all public institutions in Virginia. The projections are used primarily in the capital and operating budget review processes and are prepared in two packages. Long-range projections (10 years) are used for capital-outlay purposes, and short-term projections (3 years) are used for operating-budget purposes. The projections are revised at least every 2 years.

Long-range projections are provided for on-campus fall head count, total head count by student level, and regular session FTEs. Short-range projections are provided for head-count and FTE enrollments by student level, by full- and part-time status, and by resident and nonresident for regular session, off-campus and summer session.

The Council recently shifted the base age group for its projections from the 18-to-21 and 18-to-24 categories to the 18-to-34 group. The change recognizes both the rapidly increasing growth rates nationally in the over-25 age group and the fact that Virginia has one of the strongest community-college systems in the country (community colleges have traditionally attracted a larger share of older students). To further support analysis of enrollment trends by age group, the Council began collecting age data on all enrolled students in fall 1977.

A basic element of the enrollment-estimate process in Virginia is the behavior of the college-going rate statewide and by region. The calculation divides enrollments by the total 18-to-34 population. The resulting ratio is used as a statewide planning guide and as a basis for comparing Virginia's record of providing access to that of other states.

Other forms of trend analysis are also included in the Council's development of enrollment predictions. Unusual patterns in either enrollments or

applications are disregarded if their use creates indefensible trend lines. Regional variations within statewide totals are recognized when reaching Council recommendations on institutional projections.

Population growth rates are the main driver of the long-term projections. Institutions that draw students from throughout the state project their enrollments based upon the statewide growth rate. Institutions with a predominantly regional appeal use the regional growth rate. The short-term projections are based upon current enrollments, historical retention rates, applications received for the most recent fall session, historical admission rates, and institutionally planned program changes.

So far, the SCHEV staff has not designed a computerized enrollment system incorporating the several pieces of enrollment analysis described above. The process is more like that of a staff routine, changed little enough from biennium to biennium to be familiar, but flexible enough to incorporate new enrollment-determining factors as they become evident. Except for the population data provided through the outside contract, all data needed for the enrollment forecasts are available through the Planning and Analysis System.

Facilities Review

SCHEV has designed a data-intensive facilities-analysis system based upon the application of carefully spelled out space-planning guides to institutional facilities and land data maintained in the Planning and Analysis System. The facilities inventory system is consistent with the current USOE Higher Education Facilities Inventory and Classification Procedures manual, contains all the data required to satisfy HEGIS reporting requirements for facilities, and is compatible with the facilities data suggested by the State-Level Information Base project.

Four sets of data are maintained: building characteristics, room data, land information, and classroom and class laboratory space-utilization information. All data sets are updated through the HEGIS census data each fall session.

The other key element to the facilities-analysis sytem is the set of Space Planning Guidelines. Separate guidelines are established for each of the categories indicated in figure 26.

Beginning in 1972, the General Assembly required that SCHEV guidelines be used for preparation of all capital budget requests. That action enhanced the role of SCHEV in the capital budget process considerably and encouraged use of the planning system by institutions for long-range planning.

The SCHEV facilities staff plans no major additions to the facilities data set. Planned improvements in the space guidelines include developing (1) a software package to speed up and extend the ability of institutions and the state staff to review use of existing space, (2) procedures and criteria for analyzing noninstruction-related research space, (3) a review of procedure

Figure 26

Space Planning Guidelines by Facilities Category as Established by The State Council of Higher Education for Virginia

Category	Measure
• General classrooms and service space	• Assignable square feet (ASF) per student-station-period occupied (SSPO)
• Class laboratories, shops, and service	• Assignable square feet (ASF) per student-station-period occupied (SSPO)
• Teaching-faculty office and service space	• ASF per full-time equivalent (FTE) instructional faculty and academic administrative staff member
• Library-stack reader and service space	• Stack--ASF per volume Reader--ASF per FTE student with separate standards for undergraduate and graduate students Service--percentage of stack plus reader space
• Physical-education and athletic-activity facilities space	• ASF per FTE day student, with separate standards for four-year and two-year institutions
• Special-class and individual-study laboratory space	• ASF per FTE day student
• Other instructional space	• ASF per FTE day student
• Research-faculty offices and service space	• ASF per research faculty and administrative staff member
• Other research space	• ASF per active research faculty and graduate student determined on a program by program basis
• Extension and public-service administrative and faculty-office space	• ASF per professional FTE extension and public-service personnel
• Administrative and general office	• ASF per FTE student on a declining scale by size of institutional enrollment

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and criteria for analysis of library space in recognition of changing concepts in the area of learning resources, (4) better recognition of differences among types of institutions in all space categories, (5) procedures and criteria for evaluating the space needs of teaching hospitals, and (6) criteria for determining the functional suitability of existing space. Most of these analytical developments can be completed within the limits of data already included in the facilities data set of the SCHEV Planning and Analysis System.

Student Financial Aid

Since 1973, Virginia has provided, through two statewide programs administered by the Council of Higher Education, financial assistance for students attending eligible public and private colleges and universities throughout the state. These programs, the College Scholarship Assistance Program (CSAP) and the Tuition Assistance Grant and Loan Program (TAGLP), were created to allow all students access and freedom of choice in the pursuit of their postsecondary academic goals. Over the first five years of the programs' operation, over 50,000 awards were made to full-time students who were state residents; undergraduates enrolled full-time in accredited, nonprofit postsecondary institutions; and pursuing courses of study other than those in religious training or theological education. Altogether, these students received over $17 million in grants and loans under the state-funded programs through the 1977-78 academic year. For 1978-79, over 22,000 offers of assistance were made in excess of $8 million.

The Tuition Assistance Grant and Loan Program provides financial assistance for Virginia students enrolled in the state's private colleges and universities. Its purpose is to help narrow the tuition gap--the difference between the generally higher cost of private institutions and the lower tuition charged by the state-supported institutions. Through this concept, the program encourages student freedom of choice in matching individual educational goals with the offerings of a diverse system of higher education.

First established by the Virginia General Assembly in 1973, the Tuition Assistance Grant and Local Program has been continued and gradually expanded each year. Now all state-resident undergraduate students attending participating private colleges and universities in the state are eligible for assistance under the program.

All Virginia students who will be enrolled in participating institutions as full-time undergraduates during the 1979-80 academic year and who have been Virginia residents for at least one year are eligible to receive TAGLP awards. Institutional participation is limited to private colleges or universities, accredited and nonprofit, whose main purpose is to provide collegiate or graduate education and not to provide religious training or theological education.

The size of each TAGLP award is determined by the total number of eligible applicants in relation to the amount of funds appropriated by the General Assembly. Through the 1977-78 academic year, the maximum award was established at $400. The 1978 General Assembly increased the size of each award to $500 for each year of the 1978-80 biennium.

The College Scholarship Assistance Program provides need-based grants and loans to Virginia undergraduate students enrolled in Virginia public and private institutions of higher education. The program's purpose is to serve as one means of guaranteeing that financial condition will not prevent Virginia residents from having access to higher education. In 1978-79, awards under the program ranged from $200 to $800. The program uses matching funds allocated to Virginia under the federal State Student Incentive Grant Program.

The student must be a resident of Virginia, must be planning to enroll or be enrolled as a full-time student, must be enrolled in a program leading to a bachelor's or lower degree, must be a citizen of the United States, must maintain satisfactory academic progress, must not owe a refund on a previous federal grant, must not be in default on a federal student loan, and must have sufficient relative financial need.

The CSAP program uses the standard Financial Aid Form (FAF) developed by the College Scholarship Service. The FAF may also be used to apply for the Basic Educational Opportunity Grant program. The FAF data include demographic and financial information about students and their parents.

The SCHEV student-financial-aid office uses two College Scholarship Service (CSS) software packages to analyze data submitted on FAF and on the separate application required for the TAGLP.

The Financial Aid Management Information System (FAMIS) is a computer-assisted information system that processes student-applicant and fund data according to the information requirements specified by the user. It combines general routines and specific programs to create and maintain data files, select reports, sequence reports, perform computations, and prepare printed and/or punched card reports.

FAMIS allows the SCHEV staff to produce the following:

- The Student Aid Applicant Report is prepared for each applicant and displays all information available in the student's record
- The Student Eligibility Report identifies students eligible to receive awards from particular financial-aid funds
- The Student Applicant Rosters contain the basic data required to describe the applicants, answer correspondence, review academic qualifications, assess financial need, and review financial-aid rewards
- The Fund Master File Report provides information on use restrictions and fund balances for each fund

- The Statement of Fund Status reports for each applicant the date of offer; the amount offered, accepted, and outstanding; and a quarterly fund disbursement schedule; summary totals are printed for each fund

- Financial-aid award letters and mailing and folder labels can also be produced by the system

- The Fund Master Control Totals reports, monitors, and controls the number and amount of financial-aid funds committed for each type of fund and balances transactions following each update of the fund master file

The Packaging Aid Resources System (PARS) was developed by CSS to help institutional financial-aid administrators anticipate the impact of changes in student characteristics, institutional charges, general academic conditions, and program eligibility requirements. PARS was adapted to state-level analysis. Subject to the limitation of available data to students who have applied for aid, the system holds promise as a tool for state-level financial-aid planning and may eventually lead to the incorporation of some data from the Financial Aid Form into the SCHEV Planning and Analysis System.

Civil Rights Compliance

Virginia is one of the "Adam's States"[7] and has been experiencing regular demands for extensive data regarding the racial balance of staff and students in the institutions of the system. Most of the data required by the Office of Civil Rights (OCR) have been unavailable from the existing information system and so have been gathered through special data collections from the institutions. The collected data are being retained and could be processed for analysis if staff time and demand for the information creates a sufficient priority. However, as long as the OCR requirements change from year-to-year, there is unlikely to be enough consistent historical data in the file to warrant any significant commitment of staff time.

Developmental Schedule and Resources

As mentioned elsehwhere in the project documents, precise cost guidelines for estimating the time and resource requirements for an information-system-development effort have not been feasible to develop. Instead, the project and pilot-test-state staff have developed as complete a picture as possible of the time and resource environment within which each agency has been working.

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7. Resulting from the Adams v. Califano case in 1974 to force the desegregation of public colleges and universities in southern states. In January 1977, Judge Pratt ordered HEW to speed up desegregation of public higher education in six states--Arkansas, Florida, Georgia, North Carolina, Oklahoma and Virginia.

Table 25 describes the developmental history in Virginia; table 26 describes the identifiable costs associated with the effort. In using the information as a guide to estimate the schedule and budget for another state, the user must carefully consider the commitment to data-intensive analysis of the SCHEV staff, as well as the scope of the data-collection effort that is involved in supporting the commitment. Also, SCHEV has as wide a range of responsibilities as any of the pilot-test states. These two considerations together lead to an intensive data-collection and organization effort that involves costs higher than states with fewer responsibilities and less data-intensive efforts have to face.

Conclusion

The SCHEV Planning and Analysis System is comprehensive and extensive. Envisioned as a major management tool from the beginning, it has been developed by a staff familiar with data-base management concepts and committed to rather sophisticated analytical approaches, especially in the analysis of cost and resource (operations and capital) requirements. SCHEV has aggressively pursued its current responsibilities and has frequently requested General Assembly approval of extensions of those responsibilities, especially in the areas of budget analysis and program review.

The Planning and Analysis System is operational. Not all of the data intended to be included in the System have been collected, and some that have, particularly the IEP cost data, are only available for one or two years.

The development of PAS has anticipated developing responsibilities and issues. To that extent, some of the data included in it will not be fully used in the short run. Only as new issues develop and the staff develops procedures to implement them will it be possible to determine whether PAS includes unnecessary data.

Table 25

Chronological Summary of Major Activities Related to the State-Level Information System in Virginia

1956	The State Council of Higher Education for Virginia (SCHEV) was established to serve as the statutory coordinating agency in the state.
1966	Facilities and course data were mechanized.
	With the advent of HEGIS, SCHEV became the state coordinator for all institutional reporting.
1967	SCHEV published the first master plan for higher education.
	SCHEV began to collect and analyze data on programs, enrollments, finances, and facilities in the state-supported institutions (beyond that required in HEGIS).
1974	The structure and responsibility of the State Council of Higher Education for Virginia were amended.
	In October, SCHEV hired a staff member to direct development of a mechanized management-information system.
	The Virginia Plan was published that set forth 14 immediate higher-education goals.
	A one-time faculty analysis was conducted.
1975	SCHEV began developing and implementing the mechanized management-information system.
	Information Exchange Procedures (IEP) were used in a pilot mode at 39 public institutions using 1974-75 data.
	In July, Virginia became a participant state in the State-Level Information Base project.
1976	Information Exchange Procedures were implemented as a standard reporting procedure for all 39 public institutions using 1975-76 data.
1977	In January, Virginia became a pilot-test state in the State-Level Information Base project.
1978	A few new forms were added to the previous data-collection activities.

Table 26

Cost of the State-Level Information System in Virginia

The State Council of Higher Education for Virginia (SCHEV)

Fiscal Year	Activity	State Funds			Federal Funds (c)	Grand Total (d)
		Budgeted for MIS (a)	Other (b)	Total		
1974-75	SCHEV hired a staff member to direct development of a fully integrated and mechanized management-information system. (Some mechanized information already existed, and operational processing of these data continued.)	$ 57,000	---	$ 57,000	---	$ 57,000
1975-76	SCHEV began developing and implementing a mechanized management-information system. (Other operational processing continued.) Information Exchange Procedures (IEP) were used in a pilot mode at 39 public institutions using 1974-75 data. SCHEV began involvement in the State-Level Information Base project as a participant state.	$106,817	---	$106,817	$ 1,600	$108,417
1976-77	Development and implementation of the mechanized management-information system continued. (Other operational processing also continued.) IEP was implemented as a standard reporting procedure for all 39 public institutions using 1975-76 data. SCHEV became a pilot-test state in the State-Level Information Base project in January 1977.	$103,994	---	$103,994	$ 2,000	$105,994
1977-78	Development and implementation of the mechanized management-information system continued. (Other operational processing also continued.) Student-financial-aid application processing was added to the mechanized information system. IEP was continued as an operational reporting system. Data collection was expanded by adding a few institutional survey forms.	$186,953	$45,752	$232,705	$23,085	$255,790
1978-79 Estimated	Development and implementation of the mechanized management-information system continued. (Other operational processing also continued.) Volume of student-financial-aid applications increased. Analytical staff expanded.	$250,000	$91,500	$341,500	$35,000	$376,500

3/1/79

(a) These figures include that part of the SCHEV budget that was allocated to the Information Systems Division for developing the computerized system, which involved $18,614 in 1975-76, $17,800 in 1976-77, and $77,016 in 1977-78. The Division also provides computer support to all Council staff, so those operational costs are included too. Salaries of Information System Division staff grew from $28,000 in 1974-75 to $50,000 - $75,000 (depending on whether consultant salaries are included) in 1977-78. (The salaries for some data analysts, particularly those working with the IEP project, are budgeted elsewhere and not included here.) As long-standing plans for increasing the analytical staff are implemented in 1978-79, it is estimated that staff salaries will grow to $100,000 - $118,000.

(b) SCHEV administers two programs of state-funded financial aid. These costs represent the administrative computing (transaction processing and status reporting) associated with those programs.

(c) Federal funds are primarily those provided to SCHEV as the 1202 Commission for Virginia. Some National Institute of Education money has been made available to SCHEV to test special federal data collection interests.

(d) Does not include travel costs that are estimated at about $1,000 per year for visits to other states and attendance at meetings related to state-level information systems. Virginia, as a participant and pilot-test state, was involved in the exchange of information about state-level information systems through meetings funded by the State-Level Information Base project.

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DEVELOPMENTAL EFFORTS FOCUSED ON EDUCATIONAL-OUTCOMES AND ADULT- AND CONTINUING-EDUCATION PLANNING AT THE STATE LEVEL

The Federal Data Core project, funded by the National Center for Education Statistics (NCES), provided support for an in-depth exploration of the problems associated with the identification, collection, and use of information concerning postsecondary-education outcomes and adult and continuing education at the state and federal levels. Both areas are complex in nature and have thus far defied close examination. The purpose of this chapter is to summarize the status of the focused development work in the two pilot-test states (Hawaii and Rhode Island) that are exploring the use of outcomes information and the two pilot-test states (Idaho and Nebraska) that are examining the use of information concerning the adult- and continuing-education area.

Educational-Outcomes Analysis

Hawaii

The basis for The University of Hawaii (UH) System interest in outcomes stemmed from the question, "To what extent can the budgetmaking and resource-allocation processes be enhanced if better information is available with respect to program outcomes?" Before becoming a pilot-test state in the State-Level Information Base project, The University of Hawaii had been collecting a limited number of proxy measures of program outcomes for some time, primarily to provide information to the State Budget and Finance Department and other external groups involved in the state budgeting process. These proxy measures provided little of the information needed for the discretionary decisions about how appropriated funds could best be allocated among and within the several campuses of the University. The opportunity to test the use of outcomes data for system-level analysis was therefore attractive to the University staff.

The initial design of the outcomes project in Hawaii called for three phases of activity. The first phase solicited systemwide support for the project and identified an initial set of program-outcomes measures needed by decisionmakers at different levels within the system. The second phase assessed the feasibility of obtaining the outcomes measures identified in Phase I and examined approaches for integrating outcome measures into the budgetmaking and resource-allocation processes. The final phase will assess the actual use of outcomes information in the budgetmaking and resource-allocation processes of the University system.

Phase I. Phase I began with a survey to see what decisionmakers at The University of Hawaii system and campus levels perceived to be valid indicators of progress toward the goals of the primary or support programs in which they had responsibility. The survey instrument used in the study was based on the questionnaire used in the NCHEMS Higher Education Measures Identification Study. An introductory section was added to explain the purposes of the study. One hundred seventy-six possible outcome measures were included and organized into six program areas: Instruction (66), Organized Research (12), Public Service (17), Academic Support (14), Student Services (52), and Institutional Support (15). The respondents were asked to determine which program areas were relevant to their decision responsibilities and then to indicate for each possible measure whether it would or would not be used to assess the performance of the organizational unit(s) or program(s) for which they had responsibility.

Three significant aspects of the study were cited by the project staff:

1. Over 70 percent of the survey participants returned completed survey instruments with only one telephone follow-up inquiry to individuals who had not submitted their questionnaire by the requested date. In addition, over 430 new measures were written in by the respondents. That represents a significant level of interest in outcome measures among The University of Hawaii staff.

2. There appeared to be a significant level of agreement among individuals responsible for primary programs (Instruction, Organized Research, and Public Service) as to what constitutes an appropriate outcome measure to use in examining performance of their program. More than half of the measures (53 percent) were checked as being ones that at least one half of all respondents in that area would use as indicators of program performance.

3. There appeared to be a high level of agreement between department-level respondents in the primary programs and respondents who have responsibilities across many program areas at the college, unit, and system levels. Of those measures identified as being appropriate for use by the department-level respondents, 96 percent were also indicated as being appropriate for use by respondents at the college, unit, and system levels.

Among other highlights cited from the survey were the following:

- Most respondents favored relatively rigorous measurement of outcomes (for example, students' scores on tests) as opposed to activity measures (for example, average class size) that were currently used as proxy outcome measures for a program. The two most frequently suggested measures were:

  - Scores on inventories relating to the degree of client and/or student satisfaction of services provided
  - Scores on tests of student achievement

- Differences occurred between respondents responsible for the various separate parts of the University's mission. Instruction people tended to favor tests of student achievement and preparation for life's work; research people tended to favor measuring the outputs of research; support people tended to favor economic or fiscal measures; and student-services people favored measuring service rendered per demand.

- There were approximately 430 write-in responses from 107 people. Many of these were clarifications of survey items, but large numbers were suggestions for specific measures not included in the survey. These tended to be concentrated heavily among the support-services areas, indicating those respondents' desire for service-specific measures of outcome.

- Those measures that the University currently used as official Measures of Effectiveness were also included in the survey. The degree of usefulness of these measures was generally quite low, with the exception of items regarding course-completion rates (Instruction) and clientele served as a percentage of target population (Public Service).

Following administration of the questionnaire, a random sample of the respondents was selected for interview by members of the project staff. The project staff included representatives of the UH System, the UH campuses, and NCHEMS. The primary purpose of the interviews was to gain a better understanding about why the respondents had selected the outcome measures they did and how they would use them if obtained.

Those interviewed supported program-outcomes assessment as an important element not only for budgetmaking and resource allocation, but for program planning and development as well. Some cautions were expressed about potential misinterpretation and misuse of the measures by persons in positions of authority/control and about the costs of collecting and analyzing data involved in such an undertaking.

One of the observations drawn from the survey and interviews led to some changes in the plan for Phase I. Many respondents had a difficult time in linking outcomes analysis to the actual budgetmaking and resource-allocation

process of the University. Separate committees were established on each campus in the spring of 1977 in each of the following program areas: instruction, research, public service, academic support, institutional support, and student services. The members of each program committee were given the following responsibilities by the project task force:

1. To draft a statement of appropriate goals and outcome variables for their area of responsibility

2. To develop a comprehensive inventory of measures that would be appropriate for describing the accomplishments and assessing the performance of programs in their area of responsibility

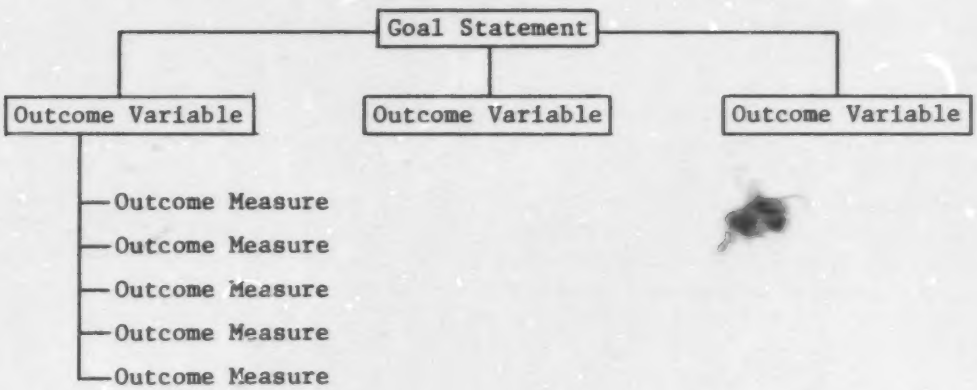
3. To develop a restricted list of measures that would be common to all program areas

4. To suggest limitations for the use of or interpretation of data collected for each of the measures

5. To prioritize the measures

Other guidelines offered in the instructions included the following:

1. Selected measures should relate to specific, stated goals of the program. The relationship between goals and specific outcome measures was depicted as:



2. The measure must be validly representative of the outcome variable.

3. The measure must be reliable. Consistency and reproductivity are important if variance due to random error is to be avoided. Common definitions are essential.

4. The data needed for the measure should be available on a timely basis at a reasonable cost.

Phase II. The committees were asked to have the lists of program goals and related outcome measures completed by August 1977. That turned out to be an unrealistic deadline. The project task force decided to grant additional time to those campuses that needed it and to proceed with Phase II activities (1) on the Hilo campus, since it was the one campus where all program committees had successfully met the deadline, and (2) regarding Public Service, since it was the one program area in which the program committees on all of the campuses completed the listing of goals and associated outcome measures. It was also decided to use the Hilo campus as a site to test various outcome-related data-collection and analysis techniques and reporting formats and procedures that could be integrated with existing planning requirements. It is anticipated that the knowledge gained in this effort could be used to facilitate completion of the total project at the other campuses. The Hilo program committees and the Public Service program committees have reassessed their program goals and associated outcome measures, aiming to identify a specific subset of the total pool of measures that would be collected at this time. The project staff has identified procedures for obtaining measures, is developing data-collection instruments where needed, and is assessing the feasibility and costs of implementing the selected procedures. Recently, the community colleges have completed all the tasks set out in Phase I, and steps have been taken to proceed at Kapiolani Community College in a manner similar to that being implemented at the Hilo campus.

Summary. The Federal Data Core project has provided The University of Hawaii with an opportunity to focus on the outcomes dimension of its already comprehensive planning and budgeting system. Outcomes analysis has received considerable attention among all state-funded agencies in Hawaii, due to the national leadership of the Hawaii state budget office in the general area of performance budgeting.

During the two years the University has been involved in the focused development effort on outcomes, the emphasis has been on reducing a large set of potential measures to a limited set of measures consistent with identified uses and time and resource constraints. The activity has concentrated on one program area--Public Service--across all campuses and on all programs on one campus--The University of Hawaii at Hilo. Kapiolani Community College has recently been added to all the programs on one campus category.

Current activities are concentrating on selecting the set that will actually be collected. Once the data are available, displays will be presented for use by participating campus and program leaders. The System Office will then explore ways in which the resulting outcomes information can help support both the performance-oriented budgeting system and the related and comprehensive program-planning system now being implemented.

Rhode Island

For the past several years, the Department of Education in Rhode Island has emphasized improving the information that is available to state-level decisionmakers. Initial efforts resulted in the development of an annual

assessment document that presented data in a way that allowed a reader to assess the condition of postsecondary education in Rhode Island. The actual Annual Assessment document is a collection of technical papers on topics such as enrollments, faculty, staff, finances, programs, resource utilization, enrollment projections, and characteristics of incoming freshmen, as well as a presentation of characteristics of the population in the state.

While the Rhode Island Department of Education staff has given much attention to improving the information base for state-level use, a missing component in the information base has been information about postsecondary-education outcomes. It was that missing component that led to the Department's interest in the outcomes-focused development effort of the State-Level Information Base project.

Just as in Hawaii, the general purpose of the special exploratory effort in Rhode Island is to provide a set of prototype information items and procedures that satisfy the need for outcome information at the state level. Specifically, Rhode Island's effort is designed to achieve three objectives.

1. To develop a set of instruments and procedures for conducting a state-level follow-up survey of graduates and former students in the three public postsecondary institutions in Rhode Island

2. To explore the use of follow-up information in the Rhode Island Department of Education's annual assessment report for postsecondary education

3. To examine ways in which follow-up information collected at the state-level can serve the planning needs of Rhode Island's postsecondary institutions

The decision to pursue these specific objectives in Rhode Island was based on the advice of the Rhode Island Outcomes Project task force, composed of representatives from each of the three public collegiate institutions in the state (Rhode Island Junior College, Rhode Island College, and the University of Rhode Island), staff from the Department of Education, and NCHEMS staff. The project task force suggested this direction after having reviewed the first annual assessment report and the document, Purposes of Postsecondary Education, which specifies the basic goals that are "to serve as a frame of reference for viewing and developing the state's system of postsecondary education."[8]

The design of the project called for implementation in four phases. Phase I involved developing the methodology for the activity (survey procedures, sampling plan, instrumentation). Phase II focused on the actual administration of the survey questionnaires. Phase III focused on data processing and analysis, and Phase IV addresses report development and evaluation.

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8. Purposes of Postsecondary Education (Providence, R.I.: Rhode Island Department of Education, Bureau of Research, Planning, and Evaluation, January 5, 1977).

Phase I. Three instruments were developed to survey three different student populations from each of the three colleges. An interinstitutional committee was established to serve as liaison to the participating institutions and to represent their various interests in the development and administration of the survey. The interinstitutional committee selected survey questions that would provide answers for both institutional and state-level users. The committee chose to focus on demographic data, attitudinal data, and information on student experiences with work and further education. The specific questionnaire used in the follow-up surveys was an adaptation of the Graduating-Student/Program Completer and Recent-Alumni questionnaires developed by NCHEMS.

Phase II. The questionnaires were printed by NCHEMS after earlier drafts had been pilot tested by the three participating colleges. The questionnaires were distributed by the Rhode Island Department of Education to all students who had graduated in 1978, 1977, and 1973. Respondents were asked to return the completed questionnaires to the Department of Education. To ensure a response rate great enough to allow for a future longitudinal survey, a follow-up of the 1978 graduates were conducted.

Phase III. The returned questionnaires were sent to the NCHEMS project staff to be keypunched and to produce printouts based on the analysis specifications established by the project task force. Frequency summaries and cross-tabulations of survey data were prepared by the project staff and provided to the Department of Education for analysis and distribution to the institutions.

Phase IV. The Department staff is now preparing the data for distribution to the institutions. Each institution will receive a full report on surveys returned by its students. The Department staff is also reviewing the data to select useful indicators for inclusion in its annual assessment and to support its ongoing state-level coordinating activities.

Tentative Implications for State and Federal Outcomes Data Collection

The project work in Hawaii and Rhode Island is not far enough along to support generalizations about what outcomes data should be collected at the state and federal levels. However, some tentative implications can be drawn from the exploratory work thus far. The following student-outcome information items have been identified as potentially useful in Hawaii:

1. Student success in earning the degree or certificate toward which they are working

2. Student success in being accepted for admittance into other educational programs

3. Student/graduate success in securing a job by occupation

4. Mobility of students/graduates in and out of the state

Six other measures have been identified as potentially valuable and are still being tested. These are:

1. Student/graduate satisfaction with their goal attainment

2. Student/graduate satisfaction with their choice of major/program

3. Student/graduate satisfaction with the range of programs and courses offered and the services provided

4. Graduate satisfaction with knowledge and skills learned while in college

5. Employer satisfaction with knowledge and skills of former students

6. Student/graduate changes in educational and job career plans

In all cases, it is important to emphasize that outcomes data serve primarily to indicate areas where further analysis, by program-level staff using program-specific data, can serve to strengthen weak areas and emphasize strengths.

Researchers in Rhode Island are currently identifying aspects of a state-level information base that are thought to be functionally distinct from an institutional-level information base. The exploratory work has several implications for additional uses. Outcome-information items can serve as indicators of the need for state-level, campus, and program-level analyses in such areas as manpower planning, the need for new or modified degree and certificate programs, the relevance of postsecondary education over time, the degree to which students and institutions are matching their programs to the job market, and the educational plans and accomplishments of the young- and older-adult communities.

The true test of the adequacy of a state-level information base is the extent to which it contributes to decisionmaking and policy determinations. Staff members of the Bureau of Postsecondary Education will learn more about the values of the survey as the data are presented to policymakers and practitioners at both state and institutional levels. The Bureau staff will be asking these individuals how the survey results are useful to them in present form, how the data might be modified to be more useful, and whether this is the kind of data that would be valuable if obtained on a regular basis. The intent of the third year of the focused development effort in the outcomes area will therefore be to better understand the actual uses of both common and unique outcome information in institutional and state-level decisionmaking processes.

Idaho

Idaho, like many other states, has been experiencing an increased demand for educational services by older, primarily part-time students. Recognizing the potential impacts on the educational system of such a shift, the State Board of Education in December 1976 asked its staff to undertake a study of part-time learners. Central to the Board's interest in this area were basic policy questions concerning the nature of the services required by (and to be provided to) the adult/part-time learner and the financing of those services. At an early meeting between NCHEMS staff and staff of the State Board of Education (SBE), the questions of primary interest were restated as:

1. Who are the part-time learners? How do they differ from full-time learners?

2. How well is this population being served (framed as relative questions of urban/rural or one region of the state vis-a-vis others)?

3. What is known about commuting patterns of part-time learners? Will they come to programs, or must programs somehow be taken to them?

Working with the SBE staff and a standing advisory group of institutional representatives concerned with data-collection issues in Idaho, it was determined that the most cost-effective (and probably most reliable) way of addressing these questions was to use readily available institutional data to develop a profile of the part-time learner. In short, it was decided that, at least as an initial step, it would be more appropriate to investigate the "revealed behavior" of part-time/adult learners using data available from institutions rather than to survey individuals (potential learners) in an effort to assess their interests and preferences.

As a consequence, the public four-year institutions[9] were asked to submit the following data items on each student enrolled in any program or course at their institution in fall 1977:

- Sex
- Age
- Home address, zip code
- Credit/contact hours
- Student purpose (for example, enrollment in a degree program)

9. The structure of the postsecondary-education system in Idaho is heavily oriented toward this particular type of institution.

- Type of program (academic, vocational-technical, or continuing education)

The data were received late in 1977 and in the first quarter of 1978 were subjected to a variety of straightforward analyses by the NCHEMS staff. As a result of these analyses, it was possible to draw some conclusions about the adult learner in Idaho:

1. The distribution of credit/contact hours for students within each institution is so distinctly bimodal that it is easy to distinguish part-time students from the total student population on the basis of load

2. Part-time students are older (but are confined almost entirely to the 24-to-34-year-old age group)

3. The adult learner (learners of over 34 years of age) accounts for over 20 percent of Idaho's full-time academic student population

4. Significantly more women than men participate as adult/part-time learners

5. Proximity to the institution is even more of a descriptor of the part-time student population than anticipated

6. Part-time students are predominantly degree-seeking

Since the analyses showed that participation of adult learners was significantly influenced by location, sex, and age of the individuals, the SBE staff have undertaken to acquire up-to-date demographic data from the state that include each of these variables. These data can then be used to:

- Project enrollments/demands on the institution

- Identify areas of the state that are relatively less well served by educational programs

Further work in this area in Idaho is expected to focus on:

- Assessing the extent to which these findings apply to other institutional sectors in Idaho--primarily the two-year institution

- Identifying the extent to which adult learners place different kinds of demands on individual institutions (for example, do they select into particular programs)

Nebraska

Nebraska's interest in serving as a focused-development pilot-test state stemmed directly from a legislative mandate to the Nebraska Coordinating Commission for Postsecondary Education requiring development of proposals for "an integrated delivery system for the provision of adult and continuing education services" not later than January 1, 1978. Behind this mandate were legislative concerns regarding perceived instances of program duplication within the state and the need to establish a clearer statement of role and mission for different types of institutions within the state. Thus Nebraska provided a different set of issues and questions than did Idaho. Whereas Idaho's predominant interest was on the student or "demand" side of the question, Nebraska's interests were almost exclusively oriented toward the institutional or "supply" aspects of the issue.

At the time of project initiation, the Nebraska Coordinating Commission had already established an Advisory Committee on Adult and Continuing Education that was broadly representative of different kinds of providers of learning opportunities for adults. In working with Commission staff and the Advisory Committee, it became apparent that the initial need was for some fundamental work in defining adult and continuing education and for providing ways of better describing the kinds of educational programs that institutions were providing. Adult and continuing education means too many different things to different people. Therefore the project staff concentrated on more generic definitions of the various programs involved in adult and continuing education in Nebraska. Building on work done by NCHEMS in developing its Program Classification Structure and in developing the NCES Handbook of Standard Terminology for Describing Adult and Continuing Education, the following major categories of educational programs were devised and proposed for use within the state:

Adult Basic Education

Definition: Instructional programs for adults, 16 years of age or older, with less than a twelfth-grade education and not enrolled in a public-school program.

Avocational-Recreational Education

Definition: Instructional programs in personal interest and leisure classifications that do not produce postsecondary degree credits or lead toward a degree or diploma.

Academic (Degree-Credit) Education

Definition: Instructional programs of a technical vocational, academic, and professional nature leading toward associate, baccalaureate, master's, and doctoral degrees.

Vocational-Occupational Education

Definition: Instructional programs that provide the participant with knowledge, skills, and background related to a specific vocation or occupation or that improve and/or expand current skills. The program does not produce postsecondary credits that can be applied toward a degree but may produce credits that can be applied toward a diploma or certificate.

Continuing Professional Education

Definition: Nondegree-credit instructional programs, courses, and seminars for recertification, relicensure, or the improvement of participant competencies in the professions. (A profession in this case is defined as a career that requires a master's or first-professional degree for certification, licensure, or entry into the profession.)

A summary of the major recommendations contained in the Report on Adult and Continuing Education that was forwarded to the Nebraska legislature follows:

- A broad study should be conducted of the needs of Nebraska adults for basic and continuing education
- Common definitions concerning adult and continuing education should be used by postsecondary institutions, by governmental agencies, and in legislation
- Uniform data should be collected, using the common definitions, to evaluate adult- and continuing-education programs
- Adult and continuing education should be subdivided into five instructional program classifications: adult basic education, avocational-recreational education, vocational-occupational education, degree-credit education, and continuing professional education
- The delivery of adult and continuing education can be improved by using consortia arrangements involving two or more educational institutions

For each major category of educational programs, specific recommendations were then made to define the classification (see above), describe the state educational objectives for the classification, identify institutional responsibilities, recommend delivery systems, and address the potential for duplication.

Steps in Nebraska include a detailed survey of adult-learner needs in selected districts within the state and the collection of institutional data

in accordance with the program distinctions identified above. Specific next steps will be identified following resolution of questions regarding funding of the Nebraska Commission.

It should be noted that, in the process of identifying the programmatic distinctions listed above, the NCHEMS staff reviewed the unique internal data-reporting formats of several of the Nebraska institutions. While the terminology used was different, organizational arrangements allow for easy translation to this framework. It should also be noted that these five programmatic distinctions were discussed with the SBE staff in Idaho and were favorably received. It would appear that the set of five categories has general value beyond the Nebraska experience.

Tentative Implications for State-Level Information Requirements

Identifying the impact of the adult learner on postsecondary education turns more on distinctions among institutions/providers and among programs than it does on the more typical distinctions between day/evening or on/off campus offerings.

Some types of institutions/providers rely extensively on outreach efforts focused on the adult community. Others work within a mission/role definition that relies on outreach only in a secondary way. Some programs target adult audiences; most, however, do not. The credit/noncredit distinction is one indicator of probable focus.

Encouraging is the tentative conclusion that the addition of a limited number of program distinctions is virtually all that is required to encompass the broad range of learning opportunities for adults within most ongoing data-collection instruments. Once a correlation is established between the extent of adult- and continuing-education offerings and the characteristics of the institutions and program offerings responsible for those offerings, questions of location and time of day begin to fall into place.

The implications for student-oriented data are less obvious. It would be helpful to get data that distinguish among student purposes along the same lines as suggested above for institutions and programs (academic degree, job-preparation, job-skill upgrading, avocational). However, too few states are collecting information on student objectives from adult- and continuing-education students to allow an adequate test of the correlation between student characteristics and program offerings. Sex and age distribution data are of some help, particularly in anticipating the impact of changing student age and sex distribution among an institution's program offerings.

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